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J.R. McCarthy,
October 27, 1955

ONTARIO

DEPARTMENT OF EDUCATION

Suggestions

for the

LAYOUT AND CONSTRUCTION OF SCHOOLS IN ONTARIO

REVISED SEPTEMBER, 1955

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FOREWORD

These Suggestions have been prepared to meet the requests of architects and school administrators for condensed information. The contents are intended as a guide and are not to be considered as official.

The help and advice received from Board members, school administrators, teachers, architects, engineers, contractors, and members of this Department is most gratefully acknowledged.

No attempt has been made to set up building codes. Architectural and engineering services together with Dominion, Provincial, and Municipal Codes and Regulations are a sufficient guarantee to ensure safe and proper buildings.

These suggestions are by no means complete. Criticisms are invited. It is hoped that, as additions and refinements are made, further information will be made available.

September, 1955.

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PROCEDURE

1. BUILDING PROPOSAL

Before commitments of any kind are made in connection with a building project, the Board should submit a building proposal to the Department of Education.

a. Proposals for elementary schools are made on behalf of the Board by the elementary school inspector to the Superintendent of Elementary Education.

b. Proposals for secondary schools are made by the secretary of the Board to the Superintendent of Secondary Education.

2. APPROVAL OF PROPOSAL

After the proposal has been approved by the Department of Education, and when finance to meet the estimated cost of the project is assured, the Board may incur expenses, professional or otherwise, for the project as approved. It should be noted that any expense incurred prior to the issue of approval is not considered as an approved expenditure by the Department of Education.

3. SELECTION OF AN ARCHITECT

School design and construction is a highly specialized branch of architecture. Boards are strongly recommended to retain the services of an experienced school architect. The Department of Education does not make recommendations regarding the selection of an architect. This is the responsibility of the Board. Neither does the Department make comments on the plans submitted by an architect until he has been retained by the Board for the project concerned. The following considerations may assist Boards in choosing an architect:

a. length of the architect's experience in active architectural work;

b. visits by Boards to schools built by architects and discussions with the Boards and school officials concerned.

4. AGREEMENT BETWEEN THE BOARD AND THE ARCHITECT

Once a decision with respect to the architect has been made, the Board should enter into an agreement for professional service with the architect selected. Full service including engineering and supervision is desirable.

Such service is expected to guarantee the best use of space, together with a sound structure with well-engineered utilities for the efficient use and economical maintenance of the building.

Fees for such professional services (usually 6% of the building contract) are a legitimate charge against building costs.

4. AGREEMENT BETWEEN THE BOARD AND THE ARCHITECT (Cont'd)

There should be a clear understanding between the Board and the architect as to the extent of services and the amount of fees involved. Professional practice forbids architects:

a. to submit drawings or models before their services have been retained and an agreement has been signed;

b. to enter into competition with one another unless the competition is conducted under the regulations of the Ontario Association of Architects;

c. to accept a commission where an agreement has been made with another architect until the Board has terminated the agreement with the first architect.

5. EXTENT OF ARCHITECTURAL SERVICES

Complete architectural service includes the following:

a. assisting the Board in the selection of a site;

b. advising the Board that the cost of building accommodation as required by the Board and approved by the Department is likely to be within the appropriation;

c. preparing sketch plans to meet with the approval of the Board and the Department;

d. preparing final working and detailed drawings and specifications to meet with the approval of the Board and the Department;

e. providing any necessary professional engineering services;

f. obtaining all necessary permits;

g. advising the Board on the calling of tenders;

h. preparing the contract documents and advising the Board on awarding of the contract, and making arrangements for bonding the contractor;

i. periodic inspection and general supervision of the building;

j. If the Board wishes continuous supervision of the building, it becomes necessary to appoint a clerk of the works. A clerk of the works is selected by the Board and the architect, paid by the Board and is directly responsible to the architect.

k. certifying the payments due to the contractor;

l. turning the completed building over to the Board.

Professional service includes other items to the point where the complete technical and business details of the entire building programme will be adequately accounted for.

6. INFORMATION REQUIRED BY THE ARCHITECT

In order to render his best services, the architect requires the following assurances:

a. that the Board has written approval from the Department for the project, including a list of the facilities approved;

b. that the Board has assurance from the Municipality and from the Ontario Municipal Board that debentures can be issued to cover the estimated cost;

c. that the Board has made arrangements with the Municipal Council for the payment of any necessary fees or expenses incurred prior to the need for issuing debentures.

The architect should also be provided with the following information:

a. detailed information regarding the installation of built-in equipment and such utilities as gas, water, and power. (This is not a serious factor except in Vocational schools in which case it should be furnished by the Principal. In cases where the Principal has not been appointed, Departmental officials may be of some assistance.)

b. a survey and topographic map of the site. (The Board is obliged to retain and pay an Ontario Land Surveyor for this purpose and to furnish the information to the architect prior to the preparation of the sketch plans.)

c. Soil Test Borings may be required. The Board is obliged to pay for such borings if they are requested by the architect.

7. EXTENT OF BUILDING CONTRACT

Depending upon the size and class of school, the building contract usually includes provision for the following items:

a. the completed building;

b. grading, aprons, parking areas, hard-surface playing areas, roadways and walks in the immediate vicinity of the building and to the street; (Landscaping and the development of playing fields and fencing are not generally included.)

c. all mechanical and electrical equipment in operating order, including clocks, fixtures, and alarm systems;

d. bicycle racks;

e. flagpole;

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7. EXTENT OF BUILDING CONTRACT (Cont'd)

f. supply, connection, and payment of fees for the installation, testing and approval of all utilities; in the absence of a municipal water supply or sewage disposal system, an assured independent water supply (adequate for school operating conditions) and sewage-disposal system should be included;

g. all built-in equipment, including cupboards, cabinets, counters, lockers, mirrors, dispensers and general fire-fighting apparatus; utilities such as water, gas, power, drains, and their connection to instructional furniture and equipment; (Standard school furniture and equipment may be purchased directly by the Board.)

h. keys;

i. blinds, screens and storm sash, if required by the Board;

j. the protection of the work during progress of construction, including fire and Public Liability Insurance.

Further information in this regard may be obtained from the architect.

8. SKETCH PLANS

Sketch plans should be prepared in accordance with the proposal which has been approved by the Department.

The sketch plans should illustrate the accommodation and facilities as follows:

a. the site plan to scale showing the size, shape, general topographical conditions and points of compass; location of the proposed building on the site, existing structures, possible future additions, playground areas, adjacent streets, highways, sidewalks, drives, sewers, water, gas, and electric services;

b. floor plans to scale, not less than 1/16" to the foot, showing location and purpose of all rooms, shops, corridors, stairs, washrooms, offices, boiler rooms. These spaces should be named for reference purposes;

c. location of doors, windows, plumbing fixtures, built-in equipment, chalkboards, and other fixed utilities;

d. principal elevation showing overall dimensions, finished floor and ceiling levels, and outside grades, with general indication of materials;

e. sections as necessary to explain any conditions not made clear in the other drawings;

f. proposed water-supply and sewage-disposal facilities;

8. SKETCH PLANS (Cont'd)

g. Where additions or remodelling are involved, the arrangement and present use of all spaces on each floor of the existing school should be indicated so that the net loss or gain in accommodation can be readily ascertained;

h. overall sizes for all rooms and spaces within the structure;

i. An estimate of the cost, including all fixed equipment, should be submitted with the sketch plans. If this estimate is not reasonably within the limits of the approved proposal, it may be necessary to reconsider the building programme and make such adjustments as may be expedient.

Note: The Department retains a copy of the sketch plans as approved for record purposes.

9. FINAL PLANS AND SPECIFICATIONS

Complete working drawings and specifications (architectural, structural, electrical and mechanical) covering the site, all phases of construction, and all fixed equipment should be prepared in accordance with the sketch plans which have been approved by the Department.

When these plans have been approved by the Board, they should be submitted to the Department for approval.

The final plans and specifications should include complete information covering the entire project to the point where the Board and contractor should have a clear understanding of the extent of the proposed contract.

Owing to the variety of school building types and methods of construction, it is impossible to enumerate all the items which should be covered. Although not complete, the following list may serve as a guide:

a. Site Plan

1. site plan to scale showing points of compass, location, size and shape of the entire site;

2. block plan of new building, existing building, and any likely future additions, all accurately located;

3. finished contours, with finished grades at building and elevation of the first floor; general landscaping with location of walks, drives, playing areas, parking, bicycle racks, garden plots, adjoining sidewalks, streets, etc;

4. location of sewage-disposal system or sewer, water, gas and electrical services.

9. FINAL PLANS AND SPECIFICATIONS (Cont'd)

b. Architectural Plans

1. a plan for each floor and one for the roof at not less than 1/8" scale. These should include complete dimensions so that all sizes of rooms, wall thickness, methods of fabrication, materials, etc., can be readily determined.

2. All fixed utilities, built-in equipment, door swings, etc., should be clearly indicated.

3. If the structure is in the nature of an addition or alteration, there should be a clear indication to show those parts which may be existing, added or remodelled.

4. The purpose of each space should be designated.

c. Elevations

all at the same scale as the plans. Grade lines, steps, floor levels, etc., should be included.

d. Sections

1. as many sections as may be required at the same scale as the plans to show the necessary details of construction;

2. a typical classroom wall section through a window to scale, showing floors, walls, sills, jambs, heads and ceilings, indicating the true relation of window heads to ceilings;

3. typical stairs, corridors, rooms, furred ceilings, built-in equipment, fixtures, floor construction, levels and thicknesses, wall constructions, windows, doors, finish materials and roof construction.

e. Details

The plans, elevations and sections should be supplemented by the following detailed plans as found necessary:

1. sections of walls, footings, foundations, slabs, floors, windows, doors and roofs;

2. trim, including doors, windows, panelling, acoustic treatment, chalkboards and tackboards;

3. built-in fixtures and equipment, including counters, cabinets, showcases, lockers, shelves and drawers;

4. stair details showing treads, risers, handrails, landings and newels;

5. schedule of interior finishes such as floor, base, wainscote, wall, ceiling and trim;

9. FINAL PLANS AND SPECIFICATIONS (Cont'd)

f. Structural

1. drawings at the same scale as the architectural plans, unless this information is shown on the architectural plans;

2. the sizes of all concrete and steel columns, beams, trusses, girders, joists, slabs, reinforcing and method of fireproofing structural members;

3. complete details, diagrams, and schedules as required for a complete understanding of the drawings;

4. a schedule of live loads used in the design of the structure.

g. Plumbing

1. drawings at the same scale as the architectural plans, unless this information is shown on the architectural plans;

2. all weepers, storm and sanitary sewer lines, water-supply system with pipe sizes, stacks, vents, traps, cleanouts, valves, tanks, fixtures, and bibbs;

3. Connections to water and sewer services should be indicated. If private systems are required, the sewage disposal and water-supply systems should be shown in sufficient detail to make their installation and operation clear.

h. Heating and Ventilation

1. drawings at the same scale as the architectural plans, unless this information is shown on the architectural plans;

2. the size and type of boilers, boiler-room equipment, pumps, tanks, valves, traps, supply and return lines, fall of lines, zones and controls;

3. type, size, location, and capacity of motors, fans, ventilators, ducts, grills, heating units.

i. Electrical

1. drawings at the same scale as the architectural plans, unless this information is shown on the architectural plans;

2. all connections inside and outside, the sizes of all conduits and lines, the location and capacity of all outlets, circuit breakers, switch panels, fuseboxes and controls for both lighting and power;

9. FINAL PLANS AND SPECIFICATIONS (Cont'd)

i. Electrical (Cont'd)

3. clock, bell, and alarm systems, including all equipment, lines, outlets and controls;

4. the type and capacity of all lighting fixtures.

j. Specifications

Complete specifications should accompany the final drawings. The specifications should supplement the drawings so that the two, if read in conjunction with each other, will give a complete detailed understanding of the proposed building contract.

k. Record of Plans

The Department retains a copy of the final plans as approved for record purposes.

10. DETAIL LAYOUTS

Utilities such as water, drains, gas, power, and built-in furniture and fixed equipment required for instructional purposes should be shown on the final drawings. Suggested layouts for certain specialized rooms are included in this bulletin. If the layouts for specialized rooms conform reasonably with the suggested layouts, they would be approved. If any serious departure is contemplated, such layouts should be submitted to the Department and approved so that they may be incorporated in the final drawings.

11. RESPONSIBILITY

Architects, engineers, contractors, supply and equipment houses, as part of their services on a building project within the terms of their contracts with each other and with the Board, are responsible for producing a building which is structurally and mechanically safe and sound and in accordance with the suggestions contained in this guide.

Failing the existence of local by-laws, the National Building Code of Canada should be taken as a minimum requirement. All local by-laws and Provincial regulations respecting safety and health must be observed.

The Department of Education assumes none of this responsibility. Its function in connection with building programmes lies in helping to secure, with reasonable economy, the best educational facilities.

GENERAL CONSIDERATIONS

common to

ELEMENTARY AND SECONDARY SCHOOLS

100. GENERAL CONSIDERATIONS

a. These considerations are in the nature of a guide which may assist Boards, school administrators, architects, engineers, teachers, contractors, supply houses, and other agencies to plan, construct, equip and maintain satisfactory school accommodation.

b. Those items of general interest which apply to all schools are shown in this general section.

c. Any suggestions contained in this guide are subject to the Acts and Amendments, together with Regulations governing the establishment and operation of the schools concerned.

d. Nothing contained in these Suggestions is intended to restrict the design, materials or equipment for school accommodation. On the contrary, every consideration should be given to progressive design and the use of new materials and equipment which will promote the efficient and economical establishment of reasonable school facilities.

101. SELECTION AND DEVELOPMENT OF THE SITE

a. The building and the site should be considered as a unit and developed so that they offer the maximum service for the educational programme concerned. It is desirable that sites be obtained well in advance of a building programme.

b. The Planning Act, Section 26 (5), provides that land, up to 5 per cent of a proposed sub-division, may be allocated for public use. This includes school sites. Boards should collaborate with the Local Planning Board or the Council and obtain school sites of adequate size and in suitable locations which will best serve the sub-division when it is fully developed.

c. The site should be centrally located. In urban centres it is desirable that pupils attending elementary schools be not obliged to travel more than one mile. Three miles should be considered the maximum distance for pupils in urban centres attending secondary schools. In suburban and rural areas, the shifting of residential districts, the cost of transportation, and the consolidation of schools may justify the introduction of a bus service.

d. It is important that the site be free from dust, noise, smoke, fumes or other distractions or nuisances. It is essential that it be well removed from main traffic arteries or busy highways. It should be well clear of approaches to airports. If possible, the pupils should not be required to pass through busy industrial or business districts. The best location would be in an open residential area controlled by reasonable building restriction by-laws. Future developments should be checked with local town-planning authorities.

101. SELECTION AND DEVELOPMENT OF THE SITE (Cont'd)

e. The site need not be flat over its entire area, provided that there is a suitably level location for the building. Other flat or gently sloping ground could be used for play areas. The natural contours may then be suitably landscaped.

f. Sod is the best surface for general playing areas; failing this, a sandy loam is desirable. Cinders and gravel should be avoided. If the soil is of a heavy nature, it may be necessary to provide sub-surface drainage for playing areas.

g. Hard-surfaced courts may be desirable to provide play areas in the spring and fall.

h. The site should be so developed that all pupils will find opportunity for out-door games and activities.

i. The cost of the site should include an allowance for grading and the initial cost of seeding and landscaping. It will also be necessary to set aside an annual sum for its subsequent development and maintenance.

j. Utilities including water supply, sewage disposal, and power should be assured. Water supply and sewage disposal must comply with the requirements of the Ontario Department of Health.

k. In certain cases it may be necessary to take soil-test borings.

102. LOCATING THE BUILDING ON THE SITE

a. The location of the building on the site should be carefully planned. It is desirable that the building be set back at least 50 feet from the property line. This will promote safety and quietness and will also give the building a better setting or appearance. The limit of future extensions should not be closer than 50 feet to the property line.

b. Under the Highways Improvement Act, 1950, any building located within 150 feet of the right-of-way of the Queen's Highway requires a permit from the Department of Highways.

c. The building should be set on an elevated part of the site, and grades should be arranged to fall gently away from the building to ensure good surface-drainage conditions.

d. It is important that drives, walks, courts, aprons, and parking areas be laid out to provide convenient and safe means of entrance and exit. Drives intended for the use of school buses and delivery trucks should be designed and constructed to carry the loads involved.

103. GENERAL BUILDING REQUIREMENTS

a. The building should be planned to provide accommodation for the approved activities of the school concerned. The areas thus provided should be well lighted, heated, ventilated, and appointed.

103. GENERAL BUILDING REQUIREMENTS (Cont'd)

b. Expenditures for non-essential ornamentation, either interior or exterior, cannot be justified. Skilful architectural design makes it possible to erect a simple but dignified building which will be a credit to any community.

c. The National Building Code of Canada should be taken as a minimum standard. Local building codes must be observed. The requirements of the fire marshal, officer of health and other provincial and municipal authorities must be met.

d. The single-storey structure is desirable for small schools. Larger schools are likely to require two storeys. Careful consideration is necessary before three-storey structures are decided upon. Building codes require a more expensive type of construction for the multi-storey structure in order to provide adequate fire protection. Large multi-storey buildings usually surround a court, and this fact presents problems of lighting and ventilation. Such buildings are justified only in city areas where the site may be restricted.

e. The single-storey structure offers advantages in the layout of the building. Noisy areas may be isolated. Entrances for all purposes are easily arranged. Extensions may be added more conveniently.

f. Use of basement space for instructional areas is not recommended. Apart from boiler rooms, coal bunkers and storage rooms, areas in the basement are of little use.

g. Auditoriums, cafeterias and gymnasiums should be kept as near ground level as possible, for both safety and convenience. Wood floors of any kind, laid below ground level and not well ventilated, lead to high maintenance costs.

h. All instructional areas require natural light. The building should be oriented so that the majority of rooms will be assured an abundance of natural light.

i. The entire problem of the layout and construction of the school can safely be entrusted to an experienced school architect.

104. CIRCULATION WITHIN THE BUILDING

Provision for circulation of traffic within the school is most important. Traffic reaches peak conditions several times a day. During peak periods, traffic flows in opposite directions. Corridor crossings should be eliminated as much as possible. Stairwells should be located with a view to reducing corridor traffic. Good design does not permit constricted areas through which pupils must pass from one major area to another. The passage of pupils through one instructional area to another is not recommended.

105. PROVISION FOR FUTURE ALTERATIONS

a. Educational ideas and needs change with the times. It is, therefore, necessary that the building lend itself to such changes as may be required.

b. It is desirable that all instructional areas provide the maximum amount of usable space for the purposes designated. The practice of reducing such spaces by the construction of small storerooms, etc., should be avoided, unless it can be guaranteed that the area concerned is not going to suffer change or rearrangement during the life of the building.

c. Partitions between rooms or shops should be readily removable without structural damage or the disturbance of utilities such as pipes, ducts, etc.

106. PROVISION FOR FUTURE ADDITIONS

The building should be designed so that future additions may be made. The following suggestions are offered:

a. Carry corridors through to outside walls. If the ends form pockets, they may be partitioned off to form temporary offices or storerooms.

b. Avoid placing windows in walls which may be blanketed by extensions.

c. Make the boiler room sufficiently large for the installation of additional equipment. Leave flues and utilities of sufficient size and arrange for convenient cutting in of future lines.

d. Make sure that entrances and exits will not be interfered with.

e. Make service entries, water, gas, and sewer, sufficiently large and locate them so that they will not be disturbed.

f. Leave all mechanical facilities such as plumbing, heating, ventilation, electrical and fire alarm so that additions may be conveniently tied in.

g. Indicate on the plans the position of possible future additions.

107. FIRE PRECAUTIONS

a. Buildings should meet the requirements of local building codes. In the absence of a local code, the requirements of the National Building Code should be observed.

b. Fire Escapes

Properly designed buildings do not require fire escapes; consequently, outside fire escapes are not approved for new buildings.

 FIRE PRECAUTIONS (Cont'd)

c. Alarms

1. School buildings should be equipped with an adequate fire-alarm system. The system may be manually operated and quite simple in small schools.

2. Larger schools may require an electrical system, with an alarm which is clearly audible in all parts of the building.

3. There should be at least one alarm-sounding station conspicuously located in the corridor of each floor and within reasonable distance of every shop, room, or laboratory which it serves. Stations are also required in or near heater rooms, auditoriums, cafeterias, and stages.

4. Alarm stations should be painted red and clearly marked "Fire Alarm".

5. Fire-alarm systems must be entirely independent of other signalling systems, and the tone must be easily distinguishable from the tone of any other signal used in the school.

d. Routes

Properly organized methods of evacuating the building should be arranged to meet with the approval of the local fire authorities. Routes to be followed and all exits should be clearly marked. The effectiveness of the arrangements should be tested by periodic fire drills.

e. Fire Extinguishers

1. Fire extinguishers should be provided for all school buildings. It is essential that they be checked periodically for condition and that the date of inspection be noted on the extinguisher. They should be located near each fire-alarm sounding station.

2. The soda-acid type of extinguisher is satisfactory for general purposes. It must, however, be protected from freezing. It should not be used for electrical or flammable liquid fires.

3. The pyrene (tetra-chloride) hand extinguisher is effective in case of electrical fires. It should not be used on hot metals or in confined spaces because of the toxic fumes which will be given off.

4. The carbon dioxide extinguisher is well adapted to small flammable liquid fires and for general use. It has limitations, however, with respect to deep-seated fires.

5. The foam type of extinguisher is also effective for small flammable liquid fires and for general use.

6. All extinguishers should be mounted so that they are readily seen and instantly available.

108. CONCENTRATED OCCUPANCY

a. Auditoriums, playrooms, gymnasiums, cafeterias and galleries are designed for a specified maximum occupancy. Spaces for dual purposes such as the auditorium-gymnasium must, of necessity, be furnished with loose chairs. The maximum number of persons in areas with loose chairs should be restricted to 500. In any concentrated occupancy involving loose chairs there should be an allowance of 8 square feet per occupant. Aisles and exits must be kept clear at all times.

b. The building itself is designed for a normal pupil occupancy. The occasional school function may overtax occupancy to the point where a hazard is created, which may prove dangerous in the event of fire or panic.

c. The design of the building provides adequate corridors, stairwells, exits, for all reasonable pupil occupancy and public functions. Overcrowding or the restriction of safe, adequate means of exit becomes the responsibility of the Board. If the Board has any reason to question the wisdom of any proposed programme which concerns the safety of the occupants, then the local fire authorities should be consulted.

109. ELECTRICAL

a. General

1. All electric wiring and apparatus should be in accordance with the current edition of the Canadian Electrical Code, and the requirements of the Ontario Hydro-Electric Power Commission.

2. Arrangements should be made with the local authorities for the most suitable and economical supply of electricity.

3. The distribution system for lighting, convenience outlets, portable devices and fractional H.P. motors should be 110-220 volt, single phase.

4. Where power is used for machines operated by pupils, 220 volt, 3 phase is recommended. High voltages present additional hazards and are not desirable.

b. Switches and Controls

1. All switches should be flush-type toggle or tumbler switches and should, in general, be installed on the knob side of entries. Key switches should not be used for control of lights in classrooms and workrooms.

2. Classroom lights should be operated by at least two switches. Where rows of lights are parallel to the main window, each row should be controlled separately.

 ELECTRICAL (Cont'd)

b. Switches and Controls

3. In corridors and stairways the lights should be controlled by three-way switches located at each end of these spaces.

4. Remote-control switches should have pilot-light indication.

5. In auditoriums and assembly rooms, some or all house lights should be controllable from a switch located convenient to the point of entry and from the probable location of a portable movie projector, unless the house lights are controlled from a stage-lighting panel which can be reached by a lighted passage with conveniently located switches. In this case, a communication system of some type should be provided between the projector and the stage-lighting control panel.

c. Convenience Outlets

1. The number and location of outlets should be in accordance with the immediate and probable future use of the space.

2. Classrooms should be provided with at least two double outlets, one at the rear of the room and one at the front.

3. Electric heat outlets should have pilot-light indication.

4. Auditoriums and assembly rooms not equipped with a projection booth should be provided with a convenience outlet at the probable location of a portable movie projector.

5. In Vocational Shops, General Shops, and other spaces where portable electric devices are used, convenience outlets should be of the grounded type to suit the 3-cord conductors supplied with such machines.

d. Intercommunicating Systems

1. In larger schools, consideration may be given to some form of intercommunication system. The system chosen and its extent may be determined by the requirements of the individual school and the complexity of its administration.

2. At least one built-in speaker cable should be provided between the projector location in the auditorium and the stage.

e. Clocks & Programme Systems

All rooms, shops, and other areas where pupils assemble should be provided with a reliable clock. The clocks or clock systems should be carefully selected and due consideration given to the availability of any necessary servicing, adjustment and repair.

The kind and size of school determines the clock system required. The following suggestions are made:

109. ELECTRICAL (Cont'd)

e. Clocks & Programme Systems (Cont'd)

1. Elementary Schools: Clocks which may be independent of one another are satisfactory.

2. Secondary Schools: Since these schools usually operate on a rotary system, it is important that time be controlled by a master clock.

This may be done by the installation of a master clock in the administration quarters and secondary clocks in all rooms, shops and other areas throughout the building. Each secondary clock should be provided with a bell or buzzer to announce programme changes.

An alternative arrangement is to install a master clock in the administration quarters with bells or buzzers in all rooms and shops to announce programme changes. It might be supplemented by a few secondary clocks at strategic points.

110. HEATING

Indoor air free of pollution and automatically controlled for volume, temperature, and humidity, is desirable for health and efficiency. This is technically possible, but economic considerations, together with the possibility of interference by non-technical personnel, make elaborate systems unsatisfactory.

a. Types

1. In general, direct radiation and convection, or wall and floor panels heated with hot water, are most satisfactory. These installations require pumps for circulation.

2. Variable-temperature, low-pressure steam will also give reasonably good results with direct radiation or convection, but it cannot be used with panel-heating systems.

3. In small schools of one or two rooms, a hot-air heating system may be considered. It should be noted that such systems depend upon recirculation of air, which tends to spread dust, odours, and even infection.

b. Requirements

All parts of heating systems should be designed to ensure a temperature of 70°F. in all rooms used by students or staff, at the recognized base outdoor temperature for the particular locality. This is usually taken as 15°F. above the lowest recorded local temperature.

1. Temperatures in corridors and washrooms, and in gymnasiums used for physical education only, may be 65°F.

2. Heating equipment should be designed to allow the introduction of the required volume of air for ventilation.

110. HEATING (Cont'd)

b. Requirements (Cont'd)

3. Direct heating surfaces, including convectors, should be placed beneath windows and extended as nearly the full length of them as reasonably possible. They should be preferably hung from the wall. Screens or radiator enclosures are of advantage as they reduce direct radiation of heat on nearby occupants.

c. Boiler Plant

1. Boiler and fuel rooms should be separated from other parts of the building by fire-resistive construction.

2. Mechanical firing such as stoker or oil burner is recommended.

d. Controls

1. Automatic temperature control is recommended. Central control, manual or automatic, is suitable for small schools; automatic zone control is usually sufficient in larger schools.

2. Auditoriums, gymnasiums and portions of the building used outside of school hours should be on independent zones of the heating system.

111. VENTILATION

a. Types

1. Bilaterally-lighted rooms may be ventilated by window supply and window exhaust.

2. Auditoriums, cafeterias, gymnasiums, dressing rooms, kitchens, home economics rooms, laboratories, and shops should be ventilated by a system capable of exhausting any pollution, odours or fumes. Supply ventilation may have to be added in some cases, and where the system serves one space (with associated space) some recirculation of air may be permitted.

3. Wardrobes and lockers should be provided with adequate ventilation. They may then be used partially or entirely to provide the exhaust from the room or space to which they are attached.

b. Requirements

1. The minimum quantity of outdoor air supplied to a classroom or working space when in use should be 10 cubic feet per minute per occupant.

2. Washrooms should be equipped with exhaust ventilation of not less than 10 air changes per hour.

3. Cloak rooms, kitchens and rooms where food is prepared or stored should have not less than 6 air changes per hour of exhaust ventilation.

111. VENTILATION (Cont'd)

c. Distribution of Air

1. Supply or exhaust grilles, or the opening sash of windows should be located in the rooms in a manner ensuring draftless introduction of fresh air over the entire area of the room.

2. Deflectors should be provided wherever windows serve as the source of air supply. Ventilating grilles should not be placed in floors.

3. Where ventilating grilles from adjacent rooms connect into a common duct, they should be arranged to eliminate transmission of light and sound between the rooms.

d. Duct Design

Ducts should be of fire-resistive material and, if they are insulated, the insulation must also be of fire-resistive material. Exhaust ducts should not terminate inside the building. All air inlets or exhaust outlets should be protected from the weather with hoods or caps. Exhaust air outlets should be located so that the lower edge will be not less than 3 feet above the upper edge of any window or other opening into the building, located within a a horizontal distance of 20 feet.

112. PLUMBING

Plumbing installations should be in accordance with the regulations of the Provincial Department of Health and the local Medical Officer of Health.

a. Water Supply

Should a water supply, other than the municipal supply, be required, it is necessary that the supply be approved by the Ontario Department of Health. This may influence the selection of a school site. Arrangements should be made with the Department of Health for periodic tests.

b. Sewage Disposal

1. Schools are required to have adequate and safe means of sewage disposal. Plans for such systems must be approved by the Ontario Department of Health.

2. No latrine or range of chemical toilets will be approved where water is available for the operation of flush toilets.

c. Hot Water

An adequate supply of hot water is desirable in all schools.

d. Fixtures

The type of fixtures selected should be designed to encourage desirable habits of cleanliness and health.

112. PLUMBING (Cont'd)

e. Water Closets

Water closets should be porcelain or vitreous china, flush rim, elongated bowl or extended rim, with open front seats.

f. Urinals

Urinals should be porcelain or vitreous china, properly flushed with uniformly distributed spray. Where stall types are used, rims should be set flush with or slightly below the floor level with the floor pitched toward the urinals.

g. Lavatories (Hand Basins)

1. Lavatories should be of earthenware, enamelled iron or terrazzo.

2. Spring faucets are not recommended, but, where they are used, they should be of the delayed-action type.

h. Drinking Fountains

1. Drinking fountains should be of impervious material and of a type which will not permit the mouth of the drinker to come in contact with the nozzle or permit water to fall back upon the nozzle.

2. Drinking fountains should be entirely separate and well-removed from lavatories and sinks. They should not be placed in washrooms.

3. They should be installed so that they do not become an obstruction in corridors.

i. Bibbs

An adequate number of outside-keyed hose bibbs should be provided at strategic points.

113. WASHROOMS

a. The establishment of proper habits of health and sanitation is essential. Washrooms should be clean and bright, well-ventilated, properly appointed and easily maintained.

b. While the number of washrooms will vary with the size of the school, there should be at least one for each sex on each floor of the building. They should be located so that they are readily accessible to the various rooms which they are intended to serve. It is desirable that entrances be properly screened. Entrances to washrooms should not lead off directly from areas of concentrated occupancy such as playrooms and assembly halls. Washroom windows should be glazed with obscure glass where necessary to ensure privacy. The practice of placing washrooms in second-rate, poorly-lighted, inaccessible quarters should be condemned.

113. WASHROOMS (Cont'd)

c. Water closets should be individually enclosed by stalls with doors. The height of stall partitions should be such as to permit light and ventilation.

d. Each washroom should be provided with the requisite number of soap and towel dispensers, tissue holders and mirrors. Sanitary-napkin dispensers and disposal cabinets should be installed in washrooms for women teachers and in girls' washrooms in secondary schools.

114. LIGHTING (Daylight and Artificial Combined)

The importance of good lighting, both natural and artificial, should be recognized. Provision for the full use, development and conservation of the eyes is essential, especially for young people.

All pupils should be provided with proper seeing conditions. This means that all parts of rooms and shops, together with associated appliances used for instructional purposes, must be provided with suitable light at all times.

The design of an illumination system, either natural or artificial, includes the following factors:

1. quantity or intensity of illumination;
2. spectral quality or colour of light;
3. distribution of illumination;
4. distribution of brightness.

A brief general outline of these four factors may be of interest. The complete design, however, must be worked out by the architect in collaboration with competent lighting authorities. The Hydro-Electric Power Commission maintains a good lighting division which gives advice on artificial lighting without obligation.

a. Quantity or Intensity of Illumination

1. Intensity of illumination is measured in foot-candles. Since this cannot be done visually, the use of a foot-candle meter is necessary.

2. The intensity of illumination required for different activities varies according to the purpose for which it is required. For example, exacting activities such as sewing or drafting require a much higher intensity than physical training.

3. It is well to remember that the initial intensity when the building is new is likely to be higher than that when the building has been in use for some time. The wear and tear on decoration, the degree of maintenance and cleaning, the loss of efficiency in mechanical equipment all contribute to some loss in light intensity. Due allowance should, therefore, be made so that the required intensity will be maintained after the school settles down to normal operation.

 LIGHTING (Cont'd)

b. Spectral Quality or Colour of Light

1. An equal intensity of light from any source enables all students to work on ordinary classroom (black and white) activities with an equal degree of facility.

2. When coloured objects are viewed, their apparent colours are influenced by the colour of the light falling on them.

3. Natural daylight, tungsten filament, incandescent lamps, and white or daylight fluorescent lamps constitute light sources.

4. Artificial light sources should be given most careful consideration where the proper interpretation of colour is a factor as in art and sewing.

5. It might be noted that incandescent light is desirable in places where food is prepared or served since the nature of this light improves the appearance of the product.

c. Distribution of Illumination

1. It is desirable that there be as little variation as possible in the intensity of illumination on the working plane.

2. High variations in intensity of illumination produce glare which results in eye-fatigue. From a practical standpoint the ratio of illumination on the brightest desk should not be more than twice that on the darkest desk.

d. Distribution of Brightness

Contrast in brightness between an object to be seen and the background against which it is seen is necessary for good vision. The following suggestions for the elimination of excessive contrast are offered:

1. adequate control of direct sunlight by baffles, or blinds;

2. a few large rather than small windows with dark spaces between;

3. use of light-coloured paints or finishes on walls and ceilings;

4. use of light-coloured furniture;

5. use of light-coloured chalkboards with chalk of a contrasting colour;

6. use of artificial light sources of a brightness which is not excessive in comparison with the average brightness of the general field of view.

15. DAYLIGHTING

The high values of illumination intensity obtainable from daylight throughout a large portion of the school year, as well as the highly desirable effect of openness produced by large window areas, make the problem of illumination by daylight of prime importance in all schools. Several systems of classroom daylighting are available. In all recommended systems, the prime source of light is a large window in the outside wall of the room. This window should extend from not more than 3 feet (preferably 2 feet 6 inches) above the floor to as close to the ceiling as is structurally possible.

a. Unilateral Lighting

The standard type of classroom contains large windows in one outside wall. The chief disadvantage of this system is that the inside row of desks obtains only about one-tenth of the illumination of the outside rows, and therefore, requires supplemental lighting.

Wherever the unilateral system of daylighting is used, the windows should be to the left of the students.

b. Supplemental Lighting

Natural lighting from the main windows may be augmented by secondary sources which admit daylight from the same or from other directions.

c. Light Obstruction

The distance from any schoolroom windows to any light obstruction, such as walls and buildings, should be twice the height of that obstruction above the sill of the window.

d. Control of Glare

Adequate control of sky glare and direct sunlight should be provided through the use of baffles, deflectors, shades or curtains. Shades or curtains should be of a highly diffusing, light-coloured material.

16. ARTIFICIAL LIGHTING

Provision should be made for electrical illumination wherever possible.

a. In rooms which are used at night, the general artificial illumination on a plane 30 inches above the floor should be designed to provide 30 foot-candles.

b. In rooms which are not used at night, the general artificial illumination should be designed for slightly lower values, as some daylight will always be available.

116. ARTIFICIAL LIGHTING (Cont'd)

c. No surface of a lighting unit within an angle of approximately 45 degrees from the pupil's normal line of vision should have a surface brightness exceeding 1.5 candles per square inch in the direction of the pupil's dyes.

d. Lighting units of any kind should be as simple as possible and should be easily serviced and cleaned.

e. In unilaterally-lighted rooms, each row of lights parallel to the long wall of the room should be controlled by a separate switch. The inside row of lights may have to be in operation continuously while the room is in use.

117. DOORS

In general, most fire regulations require that all doors in institutional buildings should swing in the direction of exit travel. This may be accepted as a general rule, but the following exceptions are suggested for doors to classrooms and other rooms with not more than 40 occupants, subject to approval by the local fire authorities.

a. In a one-storey building of frame construction, a fire exit should be provided from each room to the outside. The door should open in and should be equipped with hardware that will not permit the door to be locked against exit.

It has been proved by a careful survey that snow and ice conditions in many localities definitely prohibit the outward opening of fire doors at ground level. This is particularly true if there are a number of such doors, since snow clearing is likely to be neglected.

b. Classroom doors and other doors which open into the school corridor are a frequent source of accident. In addition, in case of fire or panic, doors opening into the corridor present a dangerous restriction in corridor width. Two alternatives are suggested to overcome this situation.

1. The first is to recess the door into the corridor wall so that it will not project into the corridor at the end of a right-angle swing. If it projects at all, the projection should not be more than 6 inches. This arrangement will permit the door to swing in the direction of exit travel.

2. The second is to swing the door into the room. This method would, of course, need the approval of the local fire authorities.

117. DOORS (Cont'd)

c. Failing one of these alternatives, doors opening into the corridor should be hung to swing 180°, or back flush with the corridor wall. This solution should be adopted only on the insistence of local fire authorities after they have refused to consider the other alternatives mentioned.

d. Unless other factors forbid, one door for classrooms accommodating 40 students is considered sufficient.

e. Double swing doors are considered to be dangerous for school use.

f. Doors to built-in cabinets should, if possible, be full length. Half-length doors are a frequent source of accident, unless protected by a projecting deck underneath extending the full swing of the door.

118. CORRIDORS

a. Because of their shape, corridors have a tendency to build up and carry sounds like speaking tubes. To reduce, as far as possible, the noise of corridor traffic, accustical material may be used to absorb sound and reduce reverberation. Corridors should be provided with natural light if possible.

b. Objects that project into a corridor tend to impede the smooth flow of traffic. For this reason, drinking fountains, display cases and pedestals, stairways and steps, and classroom doors at the end of their swing, should not be permitted to extend into the passageway more than a few inches. Any sudden reduction in corridor width creates an obstruction and should therefore be avoided.

c. As a general rule, secondary schools, because of the greater demands occasioned by frequent mass travel between classrooms and the use of corridor lockers, require wider corridors than do elementary schools. Although proper width of corridors is proportional to the size of the school, the length of the corridors and the number of classrooms they serve, it should be borne in mind that most schools are eventually enlarged. Therefore, it is generally good policy to build school corridors wider than necessary in anticipation of future expansion.

119. STAIRWAYS

a. Stairways should provide for convenient vertical circulation for all normal school requirements. They should be so related to school activities and to each other that traffic will be evenly divided and distributed from floor to floor.

b. In addition, they should provide safe means of egress from the building in case of fire or panic. This means that stairs should lead directly to the out-of-doors, and be so located as to prevent all possibility of pupils being trapped.

119. STAIRWAYS (Cont'd)

c. Special consideration should be given to heights of handrails and safety-type treads. Handrails should be 2 feet 10 inches above the nosing of a stairway and 3 feet 6 inches above landings.

120. EXITS AND ENTRANCES

a. Exits properly located and of sufficient number and width are necessary to provide means of safe and rapid emptying of the building even if one or more avenues of escape should be blocked. Exits leading directly from stairways, doing away with the need for re-entering corridors, promote safety.

b. Where schools are situated in congested areas or on busy thoroughfares, proper locations of entrances and exits will provide greater safety from vehicles for pupils entering and leaving the building in large groups.

c. Areas of concentrated occupancy such as auditoriums, assembly halls, gymnasiums and cafeterias, require special consideration. They should be near ground level with exits leading directly to the out-of-doors rather than into the body of the building.

121. ACOUSTIC TREATMENT

The modern school houses a great variety of activities. Every attempt should be made to locate noise-producing activities in areas where the least disturbance is offered to quieter activities.

Acoustic treatment is desirable in various places for various purposes.

a. In corridors: to absorb corridor noises and reduce the transmission of noises from one part of the building to another.

b. In music rooms, typewriting rooms, noisy shops, gymnasiums, playrooms, cafeterias: to absorb and localize noise in the area in which it is produced and to reduce noise effects within the areas themselves.

c. In auditoriums, libraries and study rooms: to promote good audition and the elimination of distractions.

If finances permit, acoustic treatment is desirable for all spaces occupied by pupils within the building. If some spaces must be neglected, the Board, together with the architect, should decide upon the areas which should be given preference.

122. FLOORS

a. The type of floor surface selected is most important. It should be easily cleaned, have good traction and acoustic qualities and, in places where equipment must be fastened, it must offer a ready and secure anchorage. Permanence, cleanliness, and light colour should also be considered.

b. Where wood floors are used, oil finishes are not recommended. Such finishes present a fire hazard and tend to collect and retain dirt. Special finishes are available which are hard, durable and dust resistant. Where concrete floors are used, they should be treated with an integral hardener and finished smooth.

c. Boards are advised to take such action as may be recommended by the architect for the care and preservation of floors.

123. LOCKERS AND WARDROBES

a. From both social and purely practical points of view, every pupil requires suitable space for the safe, tidy and convenient storage of personal belongings.

b. The establishment of cloak or locker rooms is not recommended. Such areas are difficult to supervise.

c. Wardrobes installed within the classroom so that they are constantly under the supervision of teachers are generally satisfactory for elementary schools.

d. Full-length lockers set flush in the corridor walls are recommended for secondary schools. Precautions should be taken that the installation is sound-proofed against transmission of sound to adjacent classrooms.

e. Both lockers and wardrobes should be well ventilated.

124. CHALKBOARDS AND TACKBOARDS

a. Tackboard space is becoming almost as important as chalkboard space.

b. In most classrooms, after the requirements for chalkboards, built-in cupboards, etc., have been met, it is generally desirable that the remaining wall surface be covered with tackboards.

c. First quality black slate has been considered the best chalkboard material. Other materials are gaining favour but should not be purchased unless they are known to be satisfactory. Light-coloured surfaces combined with chalk of a contrasting colour afford the best seeing conditions. Such surfaces should be carefully compared with black slate with respect to permanence and easy cleaning.

124. CHALKBOARDS AND TACKBOARDS (Cont'd)

d. Chalkboards should be provided with chalk troughs which will keep both chalk and erasers out of chalk dust.

e. Cork is the most satisfactory material for tackboards. However, the expense involved forces consideration of less expensive materials such as various fibre boards.

125. SCREENS AND GUARDS

a. Insect screens may be provided on the exterior openings of places where food is prepared or served.

b. Wire guards or armoured glass may be required on gymnasium and playroom windows. Some types of electric fixtures used in gymnasiums and playrooms require guards.

126. BUILT-IN FURNITURE AND EQUIPMENT

a. Certain items of equipment and furniture should be built-in and become a permanent part of the building. This promotes convenience and efficiency in the various spaces concerned and, in addition, contributes to orderly appearance and good housekeeping habits.

b. Every attempt should be made to anticipate the need and the location of such furniture and equipment. It is better omitted if it is not suitable or if there is some likelihood that the location may prove to be unsuitable.

c. While ample storage space is a general requirement, chalkboard, tackboard, and windows all require wall space. If needs are sufficiently pressing, doors to built-in cabinets can be finished with suitable tackboard surfacing.

d. Teachers' cupboards may be required in classrooms for the storage of coats, wraps and personal effects. It is more desirable to provide such facilities in the teachers' rooms.

e. Careful arrangements should be made for the installation of cabinets and furniture which require connection to water, gas, drains, power, ventilation, etc. In most cases, standard furniture is desirable, and provision for its installation should be made within the building contract. The Board may reserve the right to purchase such furniture and equipment directly from school supply houses.

126. BUILT-IN FURNITURE AND EQUIPMENT (Cont'd)

f. In general, built-in furniture is not desirable in shops. Tool cribs are not necessary since it is better to decentralize the tools and supplies and keep them adjacent to the machines and processes concerned in suitable, movable cupboards.

g. Furniture of any kind, standard or built-in, should be simple and rugged in character. Adjustments, loose pieces, superfluous racks, shelves, and drawers should be avoided wherever possible. Ease of maintenance and cleaning is an important consideration.

h. Display cabinets built flush into the corridor walls, strategically located throughout the school, serve a most useful purpose. They may be used for trophies, club activities, sewing, social studies, crafts, art or shopwork.

Such cabinets should be provided with sliding glass doors, adjustable glass shelves, backboard on which displays can be mounted, and a lock. Cabinets should be illuminated with fluorescent light (50 foot-candles) and so arranged that observers will not be subjected to glare.

127. FINISH AND DECORATION

a. There is no reason why some drab colour should be standard for an entire school. In general, warm colours are suitable for northerly rooms and cool colours for southerly exposures. The various departments in a school might be distinguished by different colours.

b. Appropriate finishes are available for almost any purpose. The increasing use of tackboard in place of chalkboard area serves to brighten up rooms and at the same time is of some acoustic value.

c. Rooms and other spaces within the school should present suitable, practical surfaces decorated in attractive colours.

d. Ceilings should have a high light-reflecting value. Walls should be finished in non-glossy light tints. Where soiling becomes a factor, darker colours may be used for limited areas. All surfaces should be readily cleaned.

e. Wood trim and furniture should be finished in lighter tones if a varnished finish is desired. It is quite possible that the trim may be painted or enamelled.

f. Smooth-finish brick, blocks, or tile present an acceptable and durable surface.

128. FLAGPOLE

All schools should be provided with a suitable flagpole. In general, a pole attached to the building is unsatisfactory. A pole on the school grounds is more convenient and more appropriate for ceremonial purposes.

129. BICYCLE STORAGE

A bicycle-rack of iron picket-fence construction is generally satisfactory. Such a rack should not be too permanently anchored, since it often becomes necessary to move the entire bicycle-rack to another location. A canopy over the rack is not desirable.

130. TEMPORARY ACCOMMODATION

a. It is a good policy to anticipate school requirements and make the necessary arrangements for permanent school accommodation. However, sudden growths, population shifts and market conditions sometimes require the provision of temporary accommodation.

b. Temporary accommodation is not desirable. If it is used, it should be so placed on the site as not to interfere with permanent building operations.

c. Temporary accommodation is likely to cost from one-quarter to one-half the amount of permanent accommodation. Therefore, it cannot be considered as a good investment. In addition, maintenance and operating costs are likely to be excessive.

131. INSURANCE

a. Boards are obliged to provide adequate insurance for school buildings and equipment.

b. During building construction operations, the Board should be guided by the architect with respect to the placing of insurance to protect the Board's interest.

132. MAINTENANCE

a. Apart from the general caretaking of the building and grounds, it is essential that both be kept in a good state of maintenance and repair. Maintenance actually begins almost upon the day a building is accepted by the Board.

b. The structure and the mechanical equipment as turned over to the Board by the architect offer certain services and conveniences which will retain their value only if given adequate attention.

c. The effect of wear and tear by the elements on the exterior and the normal wear and tear on the interior both require constant attention.

132. MAINTENANCE (Cont'd)

d. Mechanical equipment, plumbing, heating, ventilating, and lighting will continue to perform their function efficiently only if repairs are effected when required. The practice of modifying or discontinuing the use of equipment which serves to protect the health and safety of the occupants should not be considered unless competent advice is secured. Alterations which might interfere with safety and health features originally placed in the building should not be permitted.

e. Playing grounds should be kept in a good state of repair. Hazards, even of a temporary character, should be avoided.

133. BOILERS AND PRESSURE VESSELS

All equipment of this character must be installed to meet with the approval of the Boiler Inspection Branch of the Department of Labour. Such equipment, once installed, must be maintained in safe operating condition. This may be assured in one of two ways.

a. Insurance should be carried on such equipment. The insurance company will make arrangements for periodic inspection and certification.

b. In the case of uninsured equipment, it is obligatory that the equipment be periodically inspected and certified by the Boiler Inspection Branch of the Department of Labour.

In any case, the approved pressures should not be exceeded nor should safety devices be modified or interfered with in any way.

134. SAFETY

a. Although every precaution is taken to provide safety within school buildings, there is the continual hazard that the original equipment may become dangerous through constant use. It is also possible that the introduction of new equipment might create dangerous situations. Apart from fire, health and electrical dangers, there are other dangers of a mechanical nature which may cause concern. This is particularly true in shops and vocational schools.

b. The Factory Inspection Branch of the Department of Labour may, upon invitation, make a survey of shop conditions in schools and make recommendations regarding safety devices and safe working conditions.

c. The Safety Accident Prevention Association maintains a bulletin service which is available to all schools. Their bulletins cover all phases of accident prevention. They are well illustrated and provide much useful information for safety education. Their use is highly recommended.

d. An element of danger is always present, particularly in shop activities. A Board may make provision for insuring itself against claims in respect of accidents incurred by pupils while under its jurisdiction.

SUGGESTED REQUIREMENTS

for

ELEMENTARY SCHOOLS

NOTE: Refer to Items 100 to 134 for "General Considerations"

200. SITE

It is becoming increasingly difficult to find sufficiently large sites in urban centres. In special circumstances, the Department may give consideration to sites smaller than those indicated. Some Boards have made arrangements with municipal park authorities for the use of park lands adjacent to sites for playground purposes. The following areas are suggested for elementary school sites:

up to 100	pupils	$1\frac{1}{2}$ to 2	acres
" " 200	"	2 " 3	"
" " 300	"	3 " 4	"
" " 400	"	4 " 5	"
" " 600	"	5 " 6	"

201. CAPACITY OF THE SCHOOL

a. Classrooms offer normal accommodation for 35 pupils.

b. A kindergarten may be expected to carry a load of 20 pupils in each of the morning and afternoon sessions.

c. Special areas such as home economics rooms, industrial arts and crafts rooms, or playroom-assemblies cannot be credited with a pupil load, except possibly where a rotary system is used.

202. INSTRUCTIONAL AREAS

a. Instructional areas are those which carry a class load and are devoted to actual instructional work, viz., regular classrooms, kindergartens, homemaking rooms, industrial arts and crafts rooms, playrooms, etc.

b. Widths

Unless otherwise noted a minimum width of 23 feet is suggested for all instructional areas. Playrooms are excepted.

c. Ceiling Heights

1. A ceiling height of 10 ft. 6 inches to 12 feet is suggested for most instructional areas. Playrooms should have a ceiling height of 14 to 16 feet.

202. INSTRUCTIONAL AREAS (Cont'd)

c. Ceiling Heights (Cont'd)

2. Particular care should be taken in designing artificial lighting where ceilings are 10 ft. 6 inches.

3. Window-heads should be kept as high as possible. Sills should not be more than 3 ft. 0 inches high.

d. Layouts

1. The Board, the Principal, the Inspector, and the supply houses should collaborate and furnish the architect with room layouts in order that the necessary utilities can be properly located and built in for the installation of equipment.

2. This information should be available to the architect well in advance of construction; otherwise he will be obliged to use his discretion with respect to locating utilities and fixed equipment.

203. AUXILIARY AREAS

Auxiliary areas are those which are not designated as instructional areas but which are necessary to make the school function as a whole. They provide for the following:

a. administrative offices, teachers' rooms, student supply rooms;

b. health service;

c. playrooms, stage, dressing and property rooms;

d. lunch rooms, kitchens;

e. general storerooms, boiler rooms, maintenance and caretaker quarters;

f. washrooms and toilets for staff and pupils;

g. corridors, stairwells, entrances, and other structural requirements.

The size, variety, and appointment of such spaces will depend upon the size of the school and the services which the school proposes to offer.

It should be noted that playrooms are not classed as auxiliary areas, since some instruction in physical education may be given in them.

204. FURNITURE & EQUIPMENT

The cost of furniture and equipment varies considerably. It is essential that Boards make careful investigations with supply houses and compile equipment lists.

205. CLASSROOM - Refer to Drawing #22

Location: Removed from noisy activities
Floor Area: 725 to 750 sq. ft. Min. 21 sq. ft. per pupil
Floor Surface: Linoleum, asphalt tile, hardwood
Convenience Outlets: 2 - one at each end of room
Light Intensity on Desks: 20 to 30 foot-candles

a. In elementary schools the classroom is generally the home room. Variations in the appointments are required to suit the grade concerned.

b. If the school has more than one storey, the classrooms for junior grades should be on the ground floor.

c. Wardrobes for pupils' clothing should be provided. They should be built in the rear wall or in the corridor wall.

d. Suitable storage cupboards for classroom supplies and equipment are required. These may be built-in, or they may be self-contained.

e. A cupboard for each teacher's personal effects should be provided unless such accommodation is available in the teachers' room.

f. Provision for project work is desirable. It can be included in the floor area already mentioned. The project area should include a deck with cupboards above and below for the storage of tools and materials. A sink built into the deck may be desirable.

g. Basement space, if any, should be for the heating plant only. Classrooms below grade are not considered as basement rooms if the floor is less than 3 ft. 0 inches below grade.

h. Particular attention should be given to the sizes and heights of chairs, desks, tables, chalkboards, tackboard, project-benches, wardrobes, etc. These sizes vary according to the grade concerned. It might be noted that furniture which was properly sized for a given grade twenty years ago is now being replaced with larger units. It may be advisable to equip each room with about 10% oversize and 10% undersize desks to take care of the largest and the smallest pupils, who are found in these proportions in most classes.

i. Provision should be made to darken a few strategically situated rooms for the use of projectors and delineascopes.

206. KINDERGARTEN ROOMS - Refer to Drawing #21

Location: Removed from classrooms
Floor Area: 800 sq. ft. Min. 40 sq. ft. per pupil
Floor Surface: Linoleum, asphalt tile
Convenience Outlets: 2
Light Intensity: 20 to 30 foot-candles

206. KINDERGARTEN ROOMS (Cont'd)

a. Such rooms may be established as junior, senior, or primary kindergarten rooms. The area shown will provide accommodation for 20 pupils. The room should be equipped and appointed for the class concerned. Some rooms may serve one class in the morning and another type of class in the afternoon. Accordingly, the equipment in use for the morning class might have to be supplemented for the afternoon class. In some cases, two classes may be placed in the one room. This means that the area required would be double that shown. The following suggestions apply to a typical room intended for one class at any one time.

b. Main Room

1. The area shown is required for general pupil activity. Additional space is necessary for coat-rooms, washrooms, and vestibule.

2. Good natural lighting is most desirable. A south or south-east exposure is favoured. The room should be bright and cheerful, and decorated to make pleasant surroundings for the pupils.

3. Kindergarten rooms, especially in large schools, should be self-contained. Precautions should be taken to avoid the disturbing influence of older pupils. Stairs, long corridors, and unnecessary doors should be avoided, since they increase the need for supervision.

4. It may be desirable to provide means of darkening the room for the use of a projector or delineascope.

c. Coat Room

A coat-room which may be readily supervised from the main room should open off each kindergarten room.

d. Entrance

Entrance should be from the playground area through the vestibule to the coat-room and thence to the main room. The vestibule should contain built-in cupboards for playground equipment. A low drinking-fountain may be installed in the vestibule or at some other point readily accessible to the playground area.

e. Playground Area

A playground area should be provided for the sole use of kindergarten pupils. An allowance of 2,000 sq. ft. for each room is suggested. The area should be fenced off from the remainder of the school grounds by a hedge or shrubbery. It is desirable that kindergarten pupils may enter this area directly from the sidewalk without crossing the general playgrounds. Most of the area should be sodded. Part of the area should be hard-surfaced and a small plot set aside for digging and planting.

207. PLAYROOMS - Refer to Drawing #20

Location: Removed from classrooms
Floor Area: As noted on drawing
Floor Surface: Linoleum, asphalt tile, hardwood
Ceiling Height: 14 to 16 feet
Light Intensity: 20 to 30 foot-candles

a. Playrooms which are to be used for assembly halls should be primarily designed and appointed as playrooms. Special attention should be given in order that these rooms may be rapidly and easily converted from one purpose to the other.

b. Good natural light is essential. It is desirable that there be windows (high up) along at least one of the long walls. Good general ventilation is required. It is important that walls should be free of all projections for a height of 8 feet. All doors should open out. Acoustic treatment of the ceiling may be desirable.

c. Playrooms are not intended to serve as gymnasiums. Dressing-rooms, shower rooms, and apparatus rooms are not required.

d. When playrooms are used for assembly-hall purposes, it is important that they be located and arranged for convenient and safe means of entry and exit.

208. HEALTH SERVICE

a. Boards wishing to introduce health services in schools should approach the local Board of Health. Provisions whereby such services may be supplied are set out under appropriate sections of "The Public Health Act." Agreements are required, particularly where payment of special grants is dependent upon the extension of available public health services by Boards of Health to schools.

b. If an agreement is reached with the Board of Health, school authorities should provide suitable space in the school concerned and the necessary fixtures and furniture. Medical and nursing supplies and equipment required for the rendering of these professional services associated with presently recognized school health programmes are usually conceded to be the responsibility of the official health agency, the Board of Health. It is most desirable that health service quarters be set up in a central location preferably adjacent to the general office.

Good natural light and ventilation are most desirable. Convenience outlets are required in all spaces except the wash-room. Sanitary finishes without a hospital atmosphere are most desirable. It is suggested that the floor be linoleum or asphalt tile.

208. HEALTH SERVICES (Cont'd)

c. Small schools may set up a small room for a school nurse. This room should be about 150 sq. ft. One section should be equipped with a wash hand basin, cupboard, desk, chairs, table, etc. The other section should be set aside as a rest cubicle and furnished with a proper hospital bed.

d. Larger schools may wish to expand the accommodation mentioned above and include a waiting room, small dressing room with toilet, hand basin and clothes closet and an additional rest cubicle. In this case, the area required would be 300 to 400 sq. ft.

e. Boards wishing to offer full health services, including those of doctor, dentist, and nurse, would have to provide approximately 700 to 800 sq. ft. of space. This would serve several schools.

This space should be divided to provide nurse's quarters and a common office for the doctor and the dentist. Each of these spaces requires a hand basin. The common office should be provided with plumbing connections for the dentist chair.

A general waiting room is necessary. It should include a washroom with toilet, basin, and clothes-cupboard.

The remaining space should be divided into as many rest-cubicles as possible.

209. ADMINISTRATIVE OFFICES

a. The offices should be centrally located with easy access to the main school and to the public.

b. In a small school, the office for the principal may be required to provide space for the secretary.

c. In a larger school, the principal should be provided with an office furnished and equipped for efficient administration and for meeting students, parents, teachers, and public in an appropriate manner.

A general office should be provided. Its size depends upon the size of the school. There should be access to the principal's office and to the school corridor. It should have a general waiting-space separated by a counter. The counter should be provided with suitable shelves and drawers. The waiting-space should be furnished with seating, bulletin-board, and pigeon-holes for teachers' mail. The office should be equipped with the necessary typewriters and duplicators, filing-cabinets, etc. A suitable vault may be included in the building contract.

210. TEACHERS' ROOMS

These rooms, if they are properly appointed, serve to bring the staff together. They should be provided for both men and women teachers. It is desirable that they be centrally located. The size should be such that 20% to 30% of the staff may find comfortable accommodation. Toilet facilities are essential. Lockers or clothes cupboards should be provided for all members of the staff if such storage is not available in the classrooms.

211. CARETAKING AND MAINTENANCE

The caretakers and engineers require certain facilities to carry out their duties effectively.

a. Suitable cupboards and slop-sinks should be located on each floor of the building. The cupboards should be large enough to contain the implements required for the floor concerned. If the floor area on any floor exceeds 6,000 sq. ft., then additional slop-sinks should be added for each additional 6,000 sq. ft.

b. A room centrally located with a grade entrance should be set aside as a receiving-room. Adequate equipment should be provided to take care of all shipping and receiving. The outside door to this room should be large enough to permit equipment for the maintenance of the grounds to be stored. A rest-room equipped with a toilet and washing accommodation and a hot-plate is desirable.

c. If female caretakers are employed, a separate rest-room with toilet and washing facilities and a hot-plate is necessary.

d. The boiler-room should be provided with a substantial work-bench and a full range of tools, implements, etc., generally required for the maintenance of mechanical equipment. The engineers should be provided with toilet and shower.

e. Coal-bunkers should be arranged so that classes will not be unduly disturbed when the bunkers are charged. Similar precautions should be taken regarding the removal of ashes from the boiler-room and from the premises.

212. STORAGE

a. It is almost impossible to provide sufficient storage space to meet all demands. Storage space is expensive. An adequate amount should be provided, but not for items which have outlived their usefulness and should be discarded.

b. Storage for classrooms, shops, instructional and administrative areas should be included in the space concerned from a point of view of convenience.

c. Some general storage space is desirable particularly in connection with stages, field stores, caretaking, etc.

212. STORAGE (Cont'd)

d. Basement storage is of little use because of its inconvenience. Such storage might require additional waterproofing, lighting, and ventilation, which may not be justified for this purpose alone.

213. TOILET FIXTURES

a. The general requirements for washrooms and the class and kind of fixtures are indicated in Items 112 and 113.

b. The number of fixtures required for general use by pupils with the exception of the kindergarten is suggested as follows:

100 girls	allow 6	water closets	each additional 100	- 4 W/C
100 "	" 4	hand basins	" "	100 - 1 H/B
100 boys	" 3	water closets	" "	100 - 1 W/C
100 "	" 4	urinals	" "	100 - 3 U/R
100 "	" 4	hand basins	" "	100 - 1 H/B
100 pupils	" 2	drinking fountains	" "	100 - 1 D/F

214. LUNCH ROOM AND KITCHEN

a. Urban schools are usually situated so that the pupils may go home for their noon-day meal. It is, therefore, unnecessary to provide accommodation and equipment for preparing and serving hot lunches.

b. In some rural schools, it may be necessary to provide some facilities whereby the pupils may have their lunches supplemented by milk, soup, or hot beverages. A small kitchen with equipment for this purpose may be established, or the home-making room may be used for this purpose. Lunchroom accommodation may be found in some of the classrooms or other areas.

SUGGESTED REQUIREMENTS

for

SECONDARY SCHOOLS

300. SITE

It is difficult to find sufficiently large sites in urban centres. In special circumstances, the Department may give consideration to sites smaller than those indicated. Some Boards have made arrangements with municipal park authorities for the use of adjacent park lands for playground purposes. The following areas are suggested for secondary school sites:

up	to	400	pupils	-	5	to 7	acres
"	"	600	"	-	7	" 9	"
"	"	800	"	-	9	" 11	"
"	"	1000	"	-	11	" 12	"
"	"	1500	"	-	13	" 15	"

301. CAPACITY OF THE SCHOOL

Variations in the number and size of classes, coupled with the subjects of instruction which must be fitted into the rotary system, all contribute to administration difficulties.

The capacity of the school for efficient operation may be computed as follows:

a. All classrooms, laboratories, agriculture rooms, commercial rooms, art rooms, music rooms, and library classrooms - 30 pupils

b. All general and vocational shops, home economics rooms, homemaking rooms, and clothing rooms - 20 pupils

c. Gymnasiums, auditoriums, and cafeterias provide some instructional accommodation, but they are not charged with a pupil load. - 0 pupils

302. INSTRUCTIONAL AREAS

Instructional areas are those which carry a class load and are devoted to actual instructional work, viz., classrooms, laboratories, libraries, shops, music rooms, gymnasiums, art, commercial, and home economics rooms.

The following general suggestions are made. Modifications should be made to suit local conditions.

a. Areas

1. Unless otherwise noted, the areas shown for classrooms, commercial rooms, agricultural rooms, library classrooms, music rooms, art rooms, gymnasiums, and science rooms are designed for a normal occupancy of 30 pupils, but would serve 40 pupils as a maximum.

302. INSTRUCTIONAL AREAS (Cont'd)

a. Areas (Cont'd)

2. General shop, home economics rooms, homemaking rooms, clothing rooms, and vocational shops will accommodate 20 pupils.

3. Unless otherwise shown, an allowance is included in each instructional area to provide for the necessary storage of supplies and equipment.

4. Shop areas provide sufficient space for the initial shop in a particular activity. Additional shops for the same activity may be reduced in size.

b. Widths

In general, a 23 foot width has been found satisfactory for classrooms, laboratories, home economics rooms, and for some shops. A width of 30 feet has also been found suitable for home economics rooms and some shops. Large vocational shops and gymnasiums cannot be tied down to any specified width.

c. Ceiling Heights

In general, ceiling heights for classrooms, laboratories, home economics rooms and general shops may vary from 9 feet to 12 feet. Vocational shops may require special consideration. Window heads should be kept as high as possible.

d. Layouts

1. The Board, principal, and supply houses should collaborate and furnish the architect with room and shop layouts so that the necessary utilities can be properly located and built in for the installation of equipment.

2. This information should be available to the architect well in advance of construction; otherwise the architect will be obliged to use his discretion with respect to locating utilities and fixed equipment.

3. If information is not available for power outlets for machines, the architect may bring the amount of power required into the shop concerned and leave it dead-ended with a suitable panel or switch. The final distribution and connections would then be completed by the Board or by the machinery supply houses concerned.

4. Suggested layouts for specialized rooms are included at the end of this bulletin.

303. AUXILIARY AREAS

Auxiliary areas are those which do not carry an instructional load but are necessary to make the school function as a whole. They provide for the following:

a. Administrative offices, teachers' rooms, offices for Department heads, and student supply rooms;

b. Health service and guidance or counselling offices;

c. Auditoriums (with fixed seats), stage, dressing, and property rooms;

d. P.T. Instructor's office, apparatus room, locker and shower rooms, spectator galleries;

e. Cafeteria, lunch rooms, kitchens;

f. General store rooms, boiler room, maintenance quarters;

g. Washrooms and toilets for staff and pupils;

h. Corridors, stairwells, entrances, and other structural requirements.

The size, variety, and appointment of such spaces depend upon the size of the school and the services which the school proposes to offer.

It should be noted that gymnasiums are not classed as auxiliary areas, since they carry an instructional load for physical training.

304. FURNITURE and EQUIPMENT

The cost of furniture and equipment varies considerably, especially for vocational subjects. It is essential that Boards make careful investigations with supply houses and compile equipment lists before commitments are made.

305. CLASSROOMS

Intended for English, mathematics, social studies, geography, health, etc.

Location: Removed from noisy activities
Floor Area: 700 sq. ft.
Floor Surface: Linoleum, asphalt tile, hardwood
Convenience Outlets: Two, one at each end of the room
Light Intensity on Desks: 20 to 30 foot-candles
Chalkboard: 60 sq. ft. Tackboard: 60 sq. ft.

a. Each room should be planned for its specific purpose. Chalkboard and tackboard requirements vary. Rooms for mathematics require as much blackboard space as possible, while rooms for social studies require more tackboard.

305. CLASSROOMS (Cont'd)

b. Built-in cupboards along the classroom side of the corridor wall are desirable for the storage of classroom supplies and equipment. If necessary, the doors to such cupboards may be faced with tackboards.

c. Arrangements may be made to darken one or two strategically located classrooms for the use of a projector. This applies particularly to social studies rooms.

306. LIBRARY CLASSROOM - Refer to Drawing #8

Location: Quiet, central, adjacent to English and social studies rooms.
Floor Area: 900 sq. ft.
Floor Surface: Linoleum, asphalt tile
Convenience Outlets: Two
Light Intensity on Tables: 20 to 30 foot-candles
Acoustic Treatment: Sound absorptive ceiling desirable

a. In many schools the library is used as a classroom. It is also used as a Board room and for teachers' meetings.

b. Adjustable bookshelves, map files, magazine racks, etc., should be built into all available wall space.

c. The furniture should consist of movable library tables and chairs together with the necessary filing and record cabinets.

d. Special texts and reference material peculiar to vocational activities should be kept in the room or shop concerned rather than in the central library.

307. ART ROOM - Refer to Drawing #16

Location: North Exposure, adjacent to shops, and/or household economics rooms.
Floor Area: 900 sq. ft.
Floor Surface: Linoleum, asphalt tile
Washing: Work Sink
Gas: Desirable
Convenience Outlets: 4
Light Intensity: 40 to 50 foot-candles
Chalkboard: 60 sq. ft. Tackboard: one wall, 2 feet 6 inches above floor to ceiling

a. Art has a wide application and includes many crafts. The general art room should be equipped and arranged to give experience in as many crafts as possible. This may include drawing, painting, modelling, bookbinding, weaving, block printing, carving, model making, ceramics, and work in wood, metal, leather, and plastics.

307. ART ROOM (Cont'd)

b. A considerable amount of storage space is necessary. Built-in cupboards, which may be faced with tackboard material, or standard cupboards, racks, bins, etc., may be purchased and placed in the room.

c. If air-brush painting is required, a small portable machine is recommended. Compressed air from a central compressor is not satisfactory.

d. Suitable means should be provided to darken the room for the use of a projector or delineascope.

e. Schools with one art room will be obliged to provide all art and craft activities in the one room. When two art rooms are required for general art and craft work, the rooms may be equipped in whatever manner is convenient.

308. MUSIC ROOM - Refer to Drawing #19

Location: Remote as possible from classrooms and administration quarters. Near stage, if possible.
Floor Area: 900 sq. ft.
Floor Surface: Linoleum
Convenience Outlets: 4
Light Intensity: 20 to 30 foot-candles
Chalkboard: 30 sq. ft. Tackboard: 60 sq. ft.
Acoustic Treatment: Essential for walls and ceiling

a. In small schools a regular classroom may be used upon occasion as a music room. When schools are large enough to keep a full class in the music room most of the time, it is desirable to establish a room as described.

b. Suitable storage cupboards for music stands, band and orchestral instruments and accessories are required.

c. A good ground and aerial should be provided for a radio receiver.

d. If the school has a public address system, provision should be made so that programmes can be tied into such a system.

e. Provision should be made for a record player, and suitable record storage should be provided.

309. VISUAL EDUCATION

Visual Education has always been an integral part of the educative process.

It is an important teaching aid common to all subjects, and arrangements should be made to darken a number of rooms throughout the school building.

310. HOME ECONOMICS ROOM

Accommodation, equipment, and furniture should be provided for the full range of girls' practical work, viz., home care, food preparation and service, laundry, sewing, child development and family living. Such provision varies with the size and kind of secondary school concerned. The following suggestions may serve as a general guide:

a. In schools where a full class load will be in attendance most of the time, a household economics room, Item 311, is required.

b. Where two rooms are required, one should be a homemaking room and the other a clothing room.

c. Where more than two rooms are required, a combination of rooms such as household economics rooms, homemaking rooms, and clothing rooms may be provided.

311. HOUSEHOLD ECONOMICS ROOM - Refer to Drawings #9, 10, 11 & 12

Location: Adjacent to art room
Floor Area: 1,000 to 1,200 sq. ft. Minimum: 50 sq. ft. per pupil
Floor Surface: Linoleum, asphalt tile
Gas: May be desirable for one stove
Light Intensity: 20 to 30 foot-candles
40 to 50 foot-candles desirable in sewing area
Ventilation: Independent Exhaust
Chalkboard: 30 sq. ft. Tackboard: 30 sq. ft.

a. General Considerations

1. The room should be appointed, furnished, and decorated to suggest the atmosphere found in the modern home.

2. The room may be divided to suggest designated activities. This may be done with furniture or with low functional partitions generally not more than four feet high. Such partitions could be 12 inches to 24 inches wide and form a series of cupboards, racks, shelves, bins, etc., accessible from one or both sides for storage purposes. They should be sufficiently stable to stand under their own weight and should be in convenient sections to permit rearrangement without the use of tools.

3. It is essential that the position of sinks, tubs, drainboards, sink decks, stoves, refrigerators, etc., be considered carefully and that they be built into the building permanently.

4. Adequate storage facilities are essential. Storage may be provided by cupboards built into the wall and equipped with shelves to accommodate tote-boxes. The doors to such cupboards should be full length.

311. HOUSEHOLD ECONOMICS ROOM (Cont'd)

a. General Considerations (Cont'd)

5. Care should be taken that, in an attempt to get storage space, wall space is not lost to the extent that the room loses its flexibility. Apart from essential built-in equipment, all other furnishings and equipment should be of a standard self-contained character which can be easily rearranged from time to time.

6. Wall space is at a premium. It is seldom desirable to provide windows on more than one wall. Attention should be given to the kind, size, and arrangement of windows for draping purposes.

7. It is desirable that the amount of equipment installed is such that the pupils will find adequate opportunity for experience in all activities. All equipment, however, should be in use most of the time. It is not desirable to install an excess of equipment for one activity to the point where other equipment may stand idle.

b. Living Room Area

This area should be immediately inside the entrance. It may be furnished with chesterfield, occasional chairs, coffee or end tables, bookcase, rug, floor lamp, pictures, and suitable ornaments and accessories. The teacher's desk, filing and supply cabinets might be included in this area.

c. Dining Room Area

The dining room should be adjacent to the kitchen and, if possible, to the living room area. It may be furnished with tables, chairs, buffet, teawagon, etc. If space does not permit a formal dining room, it may be set up informally in the living room or kitchen area.

d. Kitchen Area

The kitchen area should include two self-contained kitchen units designed on the home-kitchen pattern. They should be located where there is sufficient wall space for cupboards. Each kitchen unit should be equipped with a double sink, set in sink decks 36 inches high with cupboards above and below, a work table, and a stove. Work area should be adequate for 4 students. Above and below the sink decks functional drawers and well-ventilated cupboards should be built. One centrally-located refrigerator will serve more than one kitchen.

311. HOUSEHOLD ECONOMICS ROOM (Cont'd)

e. Laundry Area

1. The laundry may be located adjacent to the kitchen for convenience of installation. The following equipment may be required: one set double-compartment enamel tubs, wringer, tables, supply cupboard, towel hanging cupboard or automatic dryer, washing machine, ironing board and accessories.

2. If the ironing board is fixed, it should be placed in a good light, affixed to rather than built into the wall, and arranged so that it can be moved to some other location. If portable boards are used, a cupboard for storage is necessary. A suitable cupboard for the storage of brooms and other cleaning utensils is essential.

f. Sewing Area

1. As much space as possible should be left for this purpose. This area may serve a variety of purposes and should be flexible. It should be given a preferred location for good lighting. The following equipment may be required: 2 or 3 electric sewing machines, one treadle machine; 3 or 4 tables, 3 ft. by 5 ft. by 28 inches high, with linoleum tops; library-type chairs with storage accommodation for boxes below; suitable storage accommodation including wardrobes for hanging work in progress; cupboards for teacher's and classroom supplies and pupils' supplies and sewing; ironing board, and accessories.

2. Fitting facilities which provide good light and offer a reasonable degree of privacy are essential. A separate fitting room generally requires too much space. It is suggested that a 3-fold mirror be mounted on the wall and the sides used to serve as a screen. As an alternative, the doors on wardrobes may be arranged for this purpose.

3. A light-coloured chalkboard extending to the floor may be desirable for dress design.

312. CLOTHING ROOM - Refer to Drawing #14

Location: Adjacent to general homemaking room
Floor Area: 900 sq. ft.
Floor Surface: Linoleum, asphalt tile
Light Intensity: 40 to 50 foot-candles
Chalkboard: 30 sq. ft. Tackboard: 30 sq. ft.

a. The furniture and equipment is of the same class and kind as that for the sewing unit, Item 311, f. About 8 domestic-type electric sewing machines and 2 treadle-type, together with a suitable number of tables, chairs, and storage equipment and other accessories for a full class are required.

312. CLOTHING ROOM (Cont'd)

b. A small fitting room with cupboards as indicated on the drawing is essential.

c. As much wall space as possible should be furnished with cupboards arranged for tote-boxes and for hanging garments and storing supplies.

313. HOMEMAKING ROOM - Refer to Drawing #13

Location: Adjacent to home economics and clothing rooms
Floor Area: 900 sq. ft.
Floor Surface: Linoleum, asphalt tile
Gas: May be desirable for some stoves
Convenience Outlets: As indicated on drawing
Power: for stoves and other heating devices
Light Intensity: 20 to 30 foot-candles
Ventilation: Independent Exhaust

a. This room is intended principally for meal preparation and serving. One formal dining room as outlined in Item 311, c, should be included. In addition to the formal dining room, there should be provision for informal food service for each kitchen. It is usually necessary to include a laundry unit, Item 311, e.

b. General considerations, Item 311, a, should be observed. The available area should be devoted to as many kitchen units as possible, as shown in Item 311, d.

314. GENERAL SCIENCE LABORATORY - Refer to Drawings #3 and #4.

Location: Adjacent to agriculture room and/or physics room.
Floor Area: 800 sq. ft.
Floor Surface: Asphalt tile, linoleum, hardwood
Light Intensity: 20 to 30 foot-candles
Ventilation: Independent Exhaust
Chalkboard: 90 sq. ft. Tackboard: 60 sq. ft.

a. In small schools which require only one science laboratory, it becomes necessary to arrange and equip the laboratory for both chemistry and physics. Large schools may require general science laboratories and in addition may establish additional chemistry, physics, and other special laboratories.

b. The furnishings and utilities in the general science laboratory should be selected and installed primarily from the point of view of instruction in chemistry.

c. A supply of cold water is essential for the teacher's bench and students' benches. A supply of hot water is desirable at the teacher's bench.

d. Drains and soil lines should be of acid-resisting material. Cleanouts should be provided. Accessibility for maintenance and repair should be considered.

314. GENERAL SCIENCE LABORATORY (Cont'd)

e. Each bench should be provided with a gas supply.

f. The teacher's bench should be provided with one or two 110 V. A.C. convenience outlets.

g. Adequate provision to carry away fumes, both heavier and lighter than air, is essential. The exhaust end of the duct should be carried to a point where there will be no danger of fumes re-entering the building. Such an arrangement should be simple, positive, and so arranged that fixed ducts, hoods, etc., will not obstruct the pupils' vision of the teacher's demonstration bench. A simple method is shown on the drawing.

h. Each bench, including the teacher's, should be provided with a small acid-resisting sink. As an economy measure, sinks installed in alternate rows may be considered where fixed-bench accommodation is provided for an entire class.

i. Wherever possible, standard laboratory furniture should be purchased.

All of the tops and working surfaces should be treated to resist acid.

It is essential that the furniture and built-in equipment be selected sufficiently ahead of construction so that all necessary connections can be properly located and installed in the structure.

j. If an agriculture room is included in the school, common use may be made of the growing bench. If such a room is not included, a growing bench as indicated on the drawing, should be provided. In this case, a sunny exposure is desirable.

k. Provision should be made to darken at least one laboratory for the use of a projector.

l. A small storage and preparation room(about 100 sq. ft.) with direct communication from the laboratory may be provided. If the school has more than one laboratory, then a storage and preparation room should be provided between each pair of laboratories, in which case the area should be increased to 150 sq. ft. If necessary, the storeroom may be omitted and storage cupboards placed across the back of the room as shown on Drawing #4.

315. PHYSICS LABORATORY - Refer to Drawings #5 and #6

Location: Adjacent to general science and/or agriculture room
Floor Area: 800 sq. ft.
Floor Surface: Asphalt tile, linoleum, hardwood
Light Intensity: 20 to 30 foot-candles
Ventilation: General
Chalkboard: 90 sq. ft. Tackboard: 60 sq. ft.

315. PHYSICS LABORATORY (Cont'd)

a. A supply of hot and cold water is required at the teacher's demonstration bench.

b. Each bench should be provided with a gas supply.

c. The teacher's demonstration bench should be provided with a small sink.

d. Bench tops, etc. are not required to be acid resisting if the laboratory is to be used exclusively for physics.

e. Each bench, including the teacher's, should be equipped with 110 V. A.C. convenience outlets.

f. Wherever possible, standard laboratory furniture should be purchased.

g. It is essential that the furniture and built-in equipment be selected sufficiently ahead of construction so that all necessary connections can be properly located and installed in the structure.

h. Provision should be made to darken the laboratory for the use of a projector. This may not be necessary if such provision is made in an adjacent laboratory.

i. A small storage and preparation room (about 100 sq. ft.) with direct communication from the laboratory, should be provided. If the school has more than one laboratory, a storage and preparation room should be provided between each pair of laboratories; in this case, the area should be increased to 150 sq. ft. If necessary, the storeroom may be omitted and storage cupboards placed across the back of the room as shown on Drawing #6.

316. AGRICULTURE ROOM - Refer to Drawing #7

Location: South exposure, adjacent to general shop and/or science room
Floor Area: 800 sq. ft.
Floor Surface: Asphalt tile, hardwood
Gas: Desirable
Light Intensity: 20 to 30 foot-candles

a. This room should be equipped with pupil benches or tables and a teacher's demonstration bench. The tops of these benches should be acid resisting. The teacher's bench should be provided with a sink, hot and cold water, one or two electric outlets, and gas, if available.

b. A storeroom (150 sq. ft.) should be added at one end of the room and direct access arranged from the main room. A single door with grade entrance off the storeroom is desirable for ready access to an outside garden plot.

316. AGRICULTURE ROOM (Cont'd)

c. A growing bench should be installed along the window wall of the main room. The bench should be made of non-corrosive material and convenient means of drainage provided.

317. GENERAL COMMERCIAL ROOM - Refer to Drawing #17

Floor Area: 900 sq. ft.
Floor Surface: Linoleum, asphalt tile, hardwood
Convenience Outlets: As indicated on drawing
Light Intensity: 40 to 50 foot-candles
Chalkboard and Tackboard: As indicated on drawing

a. General commercial rooms are required in small schools where only one commercial room is available for typing and commercial practice. Blackboards are placed at both ends of the room, and special desks are used which permit pupils to sit so that light will be over the left shoulder for writing and over the right shoulder for typing.

b. This room is inclined to be noisy. It is desirable that the ceiling and possibly the walls be treated with acoustic material.

318. TYPING ROOM - Refer to Drawing #18

Floor Area: 700 sq. ft.
Floor Surface: Linoleum, asphalt tile, hardwood
Convenience Outlets: As indicated on drawing
Light Intensity: 40 to 50 foot-candles
Chalkboard and Tackboard: As indicated on drawing

a. Typing rooms should be oriented so that light comes over the right shoulder of the pupil.

b. This room is inclined to be noisy. It is desirable that the ceiling and possibly the walls be treated with acoustic material.

319. GENERAL SHOP - Refer to Drawings #1 and #2

Location: Grade level, adjacent to agriculture room
Floor Area: 1000, 1200, or 1400 sq. ft.
Floor Surface: As noted
Washing: Wash tray for 6 students
Gas: Desirable
Convenience Outlets: As indicated on drawing
Power: 3 H.P.
Light Intensity: 20 to 30 foot-candles
Chalkboard: 15 sq. ft. (Portable) Tackboard: 15 sq. ft.

a. Schools which include one or more general shops are not regarded as vocational schools.

319. GENERAL SHOP (Cont'd)

b. A general shop should provide space and equipment for four practical subjects.

c. The shop as described is intended for schools where a full class load will be in attendance most of the time.

d. In large schools two general shops may be required. In this case, the four options may be parallel in each shop, but consideration should be given to the introduction of a wider range of practical activities. It is also possible to offer a limited number of activities in each shop, provided that at least four practical activities are offered.

e. The Board should decide at an early date as to the options to be offered.

f. Should motor mechanics or farm mechanics be included, the entire floor should be concrete. If these subjects are not included, the floor may be hardwood.

g. Forge work may be required in rural centres; it is not likely to be as popular in urban centres. If forge work is included, a concrete slab about 8 ft. x 10 ft. and a 9 inch flue should be provided.

h. The general shop should not be sub-divided into small areas. Self-contained cupboards, racks, bins, etc., are suitable for the storage of tools and supplies, which should be kept adjacent to the activity concerned. It is not desirable to enclose areas for drafting or painting.

320. VOCATIONAL SHOPS

a. The shop department in a vocational school or in a school with a vocational department should include at least three different vocational shops, a drafting room, and an office for the shop director.

b. Suggested requirements for some vocational shops are shown in Items 321 to 332. Local requirements may indicate the need of other types of shops, in which case the Board should make representations to the Department for the establishment of such shops.

c. It is unnecessary to provide each shop with a classroom. One classroom might be set aside for the use of the shop department.

d. Tool cribs in shops are not desirable. It is better to provide cupboards and racks, and keep tools associated with the work at convenient points. Materials and supplies can be handled in a similar manner.

321. DRAFTING ROOM (Vocational)

Location: North light, adjacent to shops
Floor Area: 800 to 1,000 sq. ft. Min. 40 sq. ft. per pupil
Floor Surface: Linoleum, asphalt tile, hardwood
Convenience Outlets: 2 - one each end of room
Power: Allow for blue-print machine
Light Intensity on Desks: 40 to 50 foot-candles
Chalkboard: 30 sq. ft. Tackboard: 60 sq. ft.

a. If only one drafting room is required, the floor area shown will permit the installation of a blueprint or ozalid machine in the room itself. If more than one drafting room is required, a small blue-print room approximately 200 sq. ft. should be provided for common use. If a separate blue-print room is made available, then the maximum size of the drafting rooms can be limited to 800 sq. ft. each.

b. It is important that power and, if necessary, water and drains, be installed to suit the equipment selected.

322. MACHINE SHOP (Vocational)

Location: Adjacent to other metal working shops
Floor Area: 1,200 to 1,400 sq. ft. Min. 60 sq. ft. per pupil
Floor Surface: Wood block, laminated edge grain plank or equivalent
Washing: Wash tray for 6 pupils
Convenience Outlets: 6
Power: 20 H.P.
Ventilation: Independent exhaust
Gas: Desirable
Compressed Air: Desirable
Light Intensity: 20 to 30 foot-candles
Chalkboard: 15 sq. ft. Tackboard: 15 sq. ft.

a. The machine shop requires expensive equipment to offer a course satisfactory to industry.

b. A 6 inch to 9 inch flue is required to take care of fumes from heat treating.

c. Double doors to the corridor are required to admit machinery and equipment.

323. MOTOR MECHANICS SHOP (Vocational)

Location: Grade Level
Floor Area: 1,600 to 2,000 sq. ft. Min. 80 sq. ft. per pupil
Floor Surface: Concrete (hardened)
Washing: Wash tray for 6 pupils
Convenience Outlets: 10
Power: 5 H.P.
Ventilation: as noted
Gas: Desirable
Compressed Air: Required
Light Intensity: 20 to 30 foot-candles
Chalkboard: 15 sq. ft. Tackboard: 15 sq. ft.

323. MOTOR MECHANICS SHOP (Cont'd)

a. The size of the shop allows for senior work to the point where real service work may be undertaken.

b. Provision should be made for the installation of an air hydraulic hoist. Pits and ramps are dangerous and are not recommended. A track and chain fall may also be required. If the structure permits a ceiling in excess of the standard 12-foot height, this shop should be favoured in that respect.

c. This shop requires a grade entrance with an overhead door 10 feet wide. It is desirable that an apron be provided immediately outside to accommodate a few cars.

d. It is important that adequate facilities be furnished for cleaning parts. If the cleaning arrangements are such that oil and flammable liquids are discharged into the sewer, then it is essential that a satisfactory oil trap be provided.

e. Means of general ventilation should be provided. In addition, several independent outlets should be provided to carry exhaust fumes from running engines safely out of the building. Such exhaust outlets should be independent of one another. Manifolding is not satisfactory.

f. An area immediately inside the grade entrance should be graded to a floor drain, to drain off vehicles brought into the shop during inclement weather.

324. SHEET METAL SHOP (Vocational)

Location: Isolated as possible. Adjacent to welding shop
Floor Area: 1000 sq. ft. Min. 50 sq. ft. per pupil
Floor Surface: Wood block, laminated edge grain plank, or equivalent
Washing: Wash Tray for 6 pupils
Convenience Outlets: 4
Power: 1 H.P.
Ventilation: Independent Exhaust
Gas: Required
Light Intensity: 20 to 30 foot-candles
Chalkboard: 30 sq. ft. Tackboard: 15 sq. ft.

This is a particularly noisy shop. It should, if possible, be located in an isolated part of the building. It would be desirable to install acoustic material on the ceiling.

325. WELDING SHOP (Vocational)

Location: Isolated as possible, adjacent to sheet metal shop
Floor Area: 1,200 to 1,600 sq. ft. Min. 60 sq. ft. per pupil
Floor Surface: Concrete (hardened)
Washing: Wash Tray for 6 pupils

325. WELDING SHOP (Cont'd)

Convenience Outlets: 4
Power: 20 H.P.
Ventilation: As noted
Gas:Required
Compressed Air: Desirable
Light Intensity: 20 to 30 foot-candles
Chalkboard: 15 sq. ft. Tackboard: 15 sq. ft.

a. This is a particularly noisy shop. It should, if possible, be located in an isolated part of the building. It would be desirable to install acoustic material on the ceiling.

b. A grade entrance with an overhead door 8 feet wide should be provided. An overhead track with a 1-ton chain fall is desirable immediately inside the door for receiving and shipping purposes.

c. Provision should be made for both acetylene and electric welding. A flue 9 inches x 9 inches should be provided for a blacksmith's forge.

d. Ventilation is most important. A complete system should be installed to suit the equipment and so arranged to take fumes immediately away for each work station. This installation may not be included in the building contract, in which case a flue 13½ inches to 18 inches should be built into the structure, and a collar left for connection at a later date.

e. Much of the equipment in the way of racks, bins, benches, cubicles, etc., can be built in the school.

326. ELECTRIC INSTALLATION SHOP (Vocational)

Location: Adjacent to electric laboratory
Floor Area: 1,400 to 1,600 sq. ft. Min. 70 sq. ft. per pupil
Floor Surface: Wood block, laminated edge-grain plank, or equivalent
Washing: Wash Tray for 6 pupils
Convenience Outlets: 4
Power: 10 H.P.
Gas: Desirable
Light Intensity: 20 to 30 foot-candles
Chalkboard: 30 sq. ft. Tackboard: 15 sq. ft.

a. If the design of the building affords an opportunity to secure a high ceiling, this shop should be selected. A 14 foot to 16 foot ceiling is desirable for the installation of wiring structures.

b. Various potentials and frequencies will be required. Equipment in the way of motors, generators, frequency changers, transformers, may be installed within the shop for the students' use. This class and kind of equipment is not included in the building contract. Neither is it intended as part of the operating system of the school in general.

326. ELECTRIC INSTALLATION SHOP (Cont'd)

c. Potentials and frequencies generated in this shop may be made available to the electric and radio laboratories.

327. ELECTRIC LABORATORY (Vocational)

Location: Adjacent to electric installation shop
Floor Area: 1,200 to 1,400 sq. ft. Min. 60 sq. ft. per pupil
Floor Surface: Wood block, laminated edge-grain plank, or equivalent
Washing: Wash Tray for 6 pupils
Convenience Outlets: 4
Power: 10 H.P.
Gas: Desirable
Light Intensity: 20 to 30 foot-candles
Chalkboard: 60 sq. ft. Tackboard: 15 sq. ft.

a. If the school is not large enough to justify this shop, then arrangements may be made to include a limited range of laboratory work in the electric installation shop.

b. Various potentials and frequencies will be required. Equipment in the way of motors, generators, frequency changers, transformers, switchboards, may be installed in the laboratory for experimental and test purposes. This class and kind of equipment is not included in the building contract, neither is it intended as part of the operating system of the school in general.

c. Some of the equipment in this shop can be built in the school if a proper selection of motors, generators, transformers, switches, meters, and fittings are purchased as equipment.

d. Potentials and frequencies generated in this shop may be made available to the electric installation shop and the radio laboratory.

e. Bench accommodation 36 inches high with transite tops should be provided for a class of 20 students; swing stools attached to the benches at each work station may be provided.

f. Each work station should be provided with convenience outlets for 110/25, 110/60 and 110 D.C.

328. RADIO LABORATORY (Vocational)

Location: Adjacent to electric laboratory and science rooms
Floor Area: 1,200 to 1,400 sq. ft. Min. 60 sq. ft. per pupil
Floor Surface: Linoleum, asphalt tile, hardwood
Washing: Wash Tray for 6 pupils
Convenience Outlets: As noted
Power: 10 H.P. (or 15 H.P. if a transmitter is to be included)
Light Intensity: 20 to 30 foot-candles
Chalkboard: 60 sq. ft. Tackboard: 15 sq. ft.

328. RADIO LABORATORY (Vocational)

a. Radio laboratories may be required in the larger schools. Some provision may be made for a limited range of this work in small schools by setting aside some space in the electric installation shop or in the electric laboratory.

b. The radio laboratory may be served by the potentials and frequencies generated in the electric installation shop or electric laboratory.

c. Bench accommodation 36 inches high with transite tops should be provided for a class of 20 students. Swing stools attached to the benches at each work station may be provided.

d. Drawers or lockers suitable for the storage of sets under construction are essential. The space under the benches may be used for this purpose.

e. Each work station should be provided with ground and aerial connections. Convenience outlets for 110/25, 110/60 and 110 D.C. should be set up for each work station.

f. Some of the equipment in this shop can be made in the school provided that meters, panels, coils, condensers and essential main units are bought as equipment.

329. WOOD SHOP AND MILL (Vocational)

Location: Grade Level, isolated if possible
Floor Area: 1,600 to 2,000 sq. ft. Min. 80 sq. ft. per pupil
Floor Surface: Wood block, laminated edge grain plank
Washing: Slop sink
Convenience Outlets: 4
Power: 20 H.P.
Ventilation: as noted
Gas: Desirable
Light Intensity: 20 to 30 foot-candles
Chalkboard: 15 sq. ft. Tackboard: 15 sq. ft.

a. The size indicated is sufficient for one combination shop. Additional shops may be set up as wood shops, the mill equipment being used in common. Such additional shops should have a floor area of 1,000 to 1,200 sq. ft.

b. The wood shop and mill requires a grade entrance with an overhead door 10 feet wide. Additional wood shops require double doors to the corridor to admit machinery and equipment.

c. Machines should be connected to an exhaust system and floor sweeps provided at strategic points for the removal of waste. The waste may be discharged in the boiler room if the mechanical plant is arranged for this purpose. If a cyclone is installed outside the building, it should be arranged for easy unloading and located so that the noise will not disturb classrooms.

329. WOOD SHOP AND MILL (Cont'd)

d. If the design of the building affords an opportunity to secure a high ceiling, this shop should be selected. A 14 ft. to 16 ft. ceiling is desirable for the installation of the exhaust system.

e. A small, tightly enclosed paint room about 150 sq. ft. is desirable. This room may service a number of wood shops and the pattern shop, in which case the area should be increased accordingly. The benches and cabinets in this room should be made of metal.

330. PATTERN MAKING SHOP (Vocational)

Location: Adjacent to mill room and wood shop
Floor Area: 1,400 to 1,600 sq. ft. Min. 70 sq. ft. per pupil
Floor Surface: Wood Block, laminated edge-grain plank, or hardwood
Washing: Slop sink
Convenience Outlets: 4
Power: 10 H.P.
Ventilation: as noted
Gas: Required
Compressed Air: Required
Light Intensity: 20 to 30 foot-candles
Chalkboard: 30 sq. ft. Tackboard: 15 sq. ft.

a. About 20 per cent of the floor area should be concrete for an experimental foundry for testing and proving purposes. The foundry should be equipped with a skeleton equipment for small work complete with a core oven and melting pot to handle white metals. A flue 6 inches to 9 inches should be built into the structure.

b. Machines should be connected to an exhaust system. Floor sweeps should be furnished at strategic points.

331. CABINET MAKING SHOP (Vocational)

Location: Adjacent to mill room
Floor Area: 1,400 to 1,600 sq. ft. Min. 70 sq. ft. per pupil
Floor Surface: Wood block, laminated edge-grain plank, or hardwood
Washing: Slop sink
Convenience Outlets: 4
Power: 15 H.P.
Ventilation: as noted
Gas: Desirable
Compressed Air: Required if any spray painting is to be used
Light Intensity: 20 to 30 foot-candles
Chalkboard: 30 sq. ft. Tackboard: 15 sq. ft.
Furniture & Equipment: $5,000.00 to $7,000.00

a. It may be desirable to include instruction in upholstery.

331. CABINET MAKING SHOP (Cont'd)

b. Machines should be connected to an exhaust system. Floor sweeps should be provided at strategic points.

c. The paint and finishing room mentioned in Item 329, e, may be used. If spray painting is required, it will be necessary to provide a special spray-paint room.

d. The spray-paint room should be fire-proof and equipped with an automatic self-closing door. All electrical equipment, motors, fans, switches, lighting fixtures, must be vapour-proof. Electrically-operated clocks, bells or phones should not be installed in this room. The booth should be readily cleaned; sharp internal corners should be avoided. The floor of the booth should be of zinc or other inert, readily-cleaned material. The installation should comply with the requirements of the fire underwriters.

332. PRINT SHOP (Vocational)

Location: Adjacent to shops and, if possible, to english classrooms
Floor Area: 1,200 to 1,400 sq. ft. Min. 60 sq. ft. per pupil
Floor Surface: Wood block, laminated edge-grain plank, or equivalent

Washing: Wash tray for 6 pupils
Gas: Required
Compressed Air: Desirable
Convenience Outlets:
Power: 10 H.P.
Light Intensity: 40 to 50 foot-candles
Chalkboard: 15 sq. ft. Tackboard: 30 sq. ft.

a. Printing is intended to include both composition and press-work. The establishment for complete printing instruction is very costly and would require at least two shops, one for hand and machine composition and the other for pressroom work.

b. A print shop established to suit the convenience of the school would not be considered as a shop offering satisfactory training for entry to the trade.

c. Double doors to the corridor are required to admit machinery and equipment.

333. GYMNASIUM/ASSEMBLY

a. General

Secondary school gymnasiums are usually constructed to serve as gymnasium assemblies. It is difficult to design any area so that it will serve a dual purpose effectively. Since physical education is a prescribed subject for all pupils, then the gymnasium is likely to be in use for the entire school day. Therefore, the design should definitely favour the use of this area for physical education purposes, and any compromise would have to be made at the expense of its use for assembly purposes.

The school gymnasium is used outside of school hours for interform and interschool games. It is also used by many community groups who conduct evening activities. It is impossible to provide all gymnasiums with space and appointments which would be satisfactory for all of these purposes. The school gymnasium is intended primarily for the activity programme associated with physical education for all of the pupils in the school concerned. Provision for official league games, visiting teams, spectator accommodation and the like may be provided, but it is doubtful if the cost of providing these items is a legitimate charge against the educational programme.

A single gymnasium assembly complete with stage, dressing rooms, showers, and storage rooms is an expensive area, which should be utilized at least 75% of school time. This means that a gymnasium for schools with an enrolment of less than 300 is very expensive in relation to its utility.

b. Size

1. One gymnasium assembly - 45 ft. x 70 ft. will serve the physical education programme of a school with 400 to 500 pupils.

2. Schools with an enrolment of 800 to 1,000 can be served by two single gymnasiums of the size mentioned, or by a double gymnasium.

3. If a double gymnasium is decided upon, it may be of two sizes - 60 ft. x 80 ft. which would provide two 40 ft. x 60 ft. single gymnasiums, or 70 ft. x 90 ft. which would provide two single gymnasiums, 45 ft. x 70 ft.

4. The dimensions stated are from wall to wall. These dimensions will not provide for official basketball courts. They will, however, permit the playing of basketball and other organized games, which will contribute satisfactorily to the physical development of the pupils.

c. Ceiling

The height of the gymnasium should be at least eighteen feet, but twenty feet is desirable. This is the lowest point in the ceiling or roof structure.

 GYMNASIUM/ASSEMBLY (Cont'd)

d. Floor

The floor of the gymnasium is the main working surface.

1. Wood is regarded by physical training authorities as the ideal floor surface. It might be noted that wood is particularly subject to changes in temperature and humidity conditions. Every precaution should be observed regarding the installation of wood. The operating staff must observe maintenance precautions, particularly when the school is not in use.

2. For economic reasons and for ease of maintenance, it may be necessary to instal synthetic finishes, such as an asphalt tile on a concrete base.

3. Wood floors installed on or below grade level have, in many cases, proved unsatisfactory. Therefore, floors installed in such a position should be given special consideration.

4. Where floor fittings are to be installed, specifications should be made available to the architect before the floor is laid. The fastenings for gymnasium apparatus attached to the floor or to the walls should be carefully selected. Any anchors or fastenings in the floor should be of a type which will leave the floor free and unobstructed when the equipment is not in use. It is also essential that caps, lugs, anchors, etc. cannot remain in a projecting position after the apparatus is removed.

e.

Floor Markings	Dimension	Colour
1. Gymnasium 45 ft. x 70 ft.		
Basketball	38 x 60	2" Black
Volleyball	30 x 60	1" Green
Two Badminton	20 x 44	1" White
2. Double Gymnasium 60 ft. x 80 ft.		
Main Basketball	54 x 74	2" Black
Two Basketball	34 x 54	2" Black
Two Volleyball	30 x 54	1" Green
Three Badminton	20 x 44	1" White

GYMNASIUM/ASSEMBLY (Cont'd)

e.

Floor Markings	Dimension	Colour
3. Double Gymnasium 70 ft. x 90 ft.		
Main Basketball	54 x 84	2" Black
Two Basketball	38 x 60	2" Black
Two Volleyball	30 x 60	1" Green
Three Badminton	20 x 44	1" White

4. Floor markings in gymnasiums should be simple as possible. Lines which are painted on require renewal. Inlaid markings may loosen up and become a menace if many small segments are involved.

f. Walls

1. The walls should be of a smooth material which will endure use and abuse without undue maintenance costs. For purposes of physical instruction and in the interest of safety, the walls and folding bleachers should present an even surface, free of projections, to a height of 8 to 10 feet above the floor.

2. Wall Fittings

Specifications for basketball backstops and for wall ratchets should be supplied to the architect before construction of the gymnasium is complete.

3. Windows

Good natural light and window ventilation is desirable. Sills should be at least 8 ft. to 10 ft. above the floor to provide as much wall surface as possible.

g. Apparatus Room

1. Size

The gymnasium should be provided with an apparatus storage room, minimum size - 200 square feet. One storage room is sufficient for a double gymnasium if located in a position accessible to both gymnasium floors.

2. Location

The apparatus room may be off the gymnasium or it may be at a convenient point across the corridor. It should be on the same level as the gymnasium floor.

3. Access

Doors should provide easy access for equipment. The width of the opening should be at least 5 ft. 0 inches.

GYMNASIUM/ASSEMBLY (Cont'd)

g. Apparatus Room (Cont'd)

4. Shelves

24 sq. ft. of shelf space and 12 lineal ft. of rack space for tennis and badminton racquets should be provided.

h. Physical Education Teacher's Office

Each gymnasium should be provided with a physical education office. In the case of a school with only one single gymnasium, it may be necessary to provide two such offices, one for the man and one for the woman. This, however, is not essential. One office could be used in common by both.

1. Size

A minimum of 80 sq. ft. should provide space for a desk, filing cabinet, book shelves, and clothing locker.

2. Shower

Accommodation for a shower is desirable.

3. Location

This office should be convenient to the gymnasium or dressing rooms.

4. Window

A window looking on the gymnasium floor or dressing room is not recommended.

i. Dressing Room

1. General

Each gymnasium should be provided with a dressing room. Double gymnasiums should be provided with two dressing rooms, one for boys and one for girls. In schools with one single gymnasium, two dressing rooms, one for boys and one for girls are desirable. However, common use might be made of one dressing room for boys or girls if such an arrangement can be administered.

2. Size

The area required for one dressing room and shower facility is approximately 800 sq. ft.

3. Benches

Each dressing room should be provided with substantial fixed benches for a maximum load of 40 pupils.

GYMNASIUM/ASSEMBLY (Cont'd)

i. Dressing Room (Cont'd)

4. Shelves

A narrow shelf for supporting books should be provided above the benches. Pegs or hooks, securely fastened and placed below the shelf, are quite satisfactory for students' clothing.

5. Lockers

Lockers are not recommended.

6. Showers

(i) The shower room should be off the dressing room. Showers should be of the open gang type with 6 to 8 shower heads 3 feet apart, mounted at shoulder height.

(ii) Soap - A centralized liquid soap dispenser with outlets between each pair of showers is desirable.

(iii) Ventilation - The shower room and dressing room should be mechanically ventilated by exhaust.

7. Materials

The dressing room and shower room should be constructed of impervious materials, and should be as free as possible from corners of obstructions in the interests of safety and sanitation.

8. Access

Access to the shower room from the dressing room should be through a single opening with a curb about 4 inches high. A floor drain should be provided on the dressing room side of the curb with the floor graded to the drain in an attempt to keep the floor of the dressing room dry.

j. Drying Space for Team Uniforms

For sanitary and safety reasons, it is desirable to provide a heated, well ventilated area for drying team uniforms.

1. Space approximately 100 sq. ft. would provide 30 to 40 linear feet of hanger space.

2. At least one side and two ends may be constructed of open mesh material to insure good ventilation.

3. It is desirable to have this space adjacent to the dressing room.

 GYMNASIUM/ASSEMBLY (Cont'd)

k. Stage

The stage and wings should extend the full width of the gymnasium. The wings should be left free and unobstructed. There should be a means of access from backstage to the school corridor. The stage should be about 3 feet to 4 feet high and it may vary from 16 to 20 feet deep. It should be provided with lighting adequate for school purposes. Footlights are not recommended.

Convenient chair storage should be provided to take care of the chairs required for assembly purposes. This may be done by using the space under the stage or providing a room off the gymnasium for this purpose.

l. Ventilation

Gymnasiums should be well ventilated by natural or mechanical ventilation or a combination of both. When mechanical ventilation is used, special attention should be given to quietness of operation when the gymnasium is used for assembly purposes.

m. Lighting

Artificial lighting in gymnasiums should be well distributed. Lighting intensity should be 20 f. c.

n. Bleachers

1. General

Provision for spectators has attained great popularity in recent years. In the case of a single gymnasium, spectators may be accommodated in a gallery, preferably on the long side, possibly over the dressing rooms and showers. If a gallery as such is built, it should be stepped. If the budget does not permit a gallery, it might be possible for a corridor to overlook the gymnasium.

2. Single Gymnasium

If folding bleachers are used on one of the long walls of a single gymnasium, the width of the gymnasium should be increased to 50 feet.

3. Double Gymnasium

If a double gymnasium is used, spectator accommodation may be found by using bleachers on one of the long walls of the 60 x 80 gymnasium and on both walls of the 70 x 90 gymnasium.

It should be remembered that the installation of bleachers restricts the use of wall space for physical education programmes.

334. HEALTH SERVICES

a. Boards wishing to introduce health services in schools should approach the local Board of Health. Provisions whereby such services may be supplied are set out under appropriate sections of the "Public Health Act."

Agreements are required, particularly where payment of special grants is dependent upon the extension of available public health services by Boards of Health to schools.

b. If an agreement is reached with the Board of Health, school authorities should provide suitable space in the school concerned and the necessary fixtures and furniture. Medical and nursing supplies and equipment required for the rendering of these professional services associated with presently recognized school health programmes are usually conceded to be the responsibility of the Board of Health. It is most desirable that health service quarters be set up in a central location preferably adjacent to the general office.

Good natural light and ventilation are most desirable. Convenience outlets are required in all spaces except the washroom. Sanitary finishes without a hospital atmosphere are most desirable. It is suggested that the floor be linoleum or asphalt tile.

c. Small schools may set up a small room for a school nurse. This room should be about 150 sq. ft. One section should be equipped with a wash hand basin, cupboard, desk, chairs, tables, etc. The other section should be set aside as a rest cubicle and furnished with a proper hospital bed.

d. Larger schools may wish to expand the accommodation mentioned above and include a waiting room, small dressing room with toilet, hand basin and clothes closet and an additional rest cubicle. In this case, the area required would be 300 to 400 sq. ft.

e. Schools wishing to offer full health services, viz., doctor, dentist, and nurse, would have to provide approximately 700 to 800 sq. ft. of space.

It should be divided to provide a common office for the doctor and dentist, and nurse's quarters. Each of these spaces require a hand basin. The common office should be provided with plumbing connections for the dentist chair.

A general waiting room with a washroom including toilet, basin, and clothes cupboard is necessary.

The remaining space should be divided into as many rest cubicles as possible. A 20-foot distance is required for eye-testing.

335. GUIDANCE

a. Every teacher within a school does a considerable amount of counselling or guidance. The value of this service has grown to the point where it has become desirable to set up facilities for this purpose.

b. In small schools, it may be necessary to conduct this work in the regular classrooms or in other suitable spaces.

c. In moderate or larger size schools, special provision may be made for a guidance suite consisting of one or more private counselling offices. The suite should be located near and, if possible, have access to the waiting room of the general office.

336. ADMINISTRATIVE OFFICES

a. The offices should be centrally-located with easy access to the main school and to the public.

b. In the small school, the office for the principal may be required to provide space for the secretary.

Furnishings and equipment should include desks, chairs, typewriter, filing cabinets, and a small safe.

c. In the larger school, the principal should be provided with an office furnished and equipped for efficient administration and to meet students, parents, teachers, and public in an appropriate manner.

A general office should be provided. Its size depends upon the size of the school. There should be access to the principal's office and to the school corridor. It should have a general waiting space separated by a counter. The counter should be provided with suitable shelves and drawers. The waiting space should be furnished with seating, bulletin board, pigeon holes for teachers' mail. The office should be equipped with the necessary typewriters and duplicators, filing cabinets, etc. A suitable vault should be included in the building contract. A free-standing safe may be used instead of a vault.

d. In the very large school, an assistant principal's office should be provided.

337. OFFICES FOR HEADS OF DEPARTMENTS

Where Departments within a school become sufficiently large, an office should be provided for the head of the Department. In vocational schools, an office should be provided for the shop director.

It is desirable that such offices be centrally-located with respect to the Department concerned and that access be made to the corridor and to the adjoining room or shop in which the head or director may be required to teach.

338. TEACHERS' ROOMS

These rooms, if they are properly appointed, serve to bring the staff together. They should be provided for both men and women teachers. It is desirable that they be centrally located. Toilet facilities are essential. Locker or clothes storage should be provided for all members of the staff if such storage is not available in the classrooms.

339. CARETAKING AND MAINTENANCE

The caretakers and engineers require certain facilities to carry out their duties effectively.

a. Suitable cupboards and slop sinks should be located on each floor of the building. The cupboards should be large enough to contain the implements required for the floor concerned. If the floor area on any floor exceeds 6,000 sq. ft. then additional slop sinks should be added for each additional 6,000 sq. ft.

b. A room centrally located with a grade entrance should be set aside as a receiving room. Adequate equipment should be provided to take care of all shipping and receiving. The outside door to this room should be large enough to permit equipment for the maintenance of the grounds to be stored. A rest room equipped with a toilet and washing accommodation and a hot plate is desirable.

c. If female caretakers are employed, a separate rest room with toilet and washing facilities and a hot plate are necessary.

d. The boiler room should be provided with a substantial work bench and a full range of tools, implements, etc., generally required for the maintenance of mechanical equipment. The engineers should be provided with toilet and shower.

340. STORAGE

a. It is almost impossible to provide sufficient storage space to meet all demands. Storage space is expensive. An adequate amount should be provided, but not for such items which have outlived their usefulness and should be discarded.

b. Storage for classrooms, shops, instructional and administrative areas should be included in the space concerned from a point of view of convenience.

c. Some general storage space is desirable particularly in connection with stages, field stores, caretaking, etc.

d. Basement storage is of little use due to its inconvenience. Such storage might require additional waterproofing, lighting and ventilation which may not be justified for this purpose alone.

341. TOILET FIXTURES

a. The general requirements for washrooms and the class and kind of fixtures are indicated in Items 112 and 113.

Toilet facilities for shops, gymnasiums, administrative offices, teachers' rooms, and caretakers' quarters are indicated under the various items concerned.

b. The number of fixtures required for general use by pupils is suggested as follows:

100 girls	allow	5	waterclosets,	each additional	100 - 3 W/C
100 girls	"	4	handbasins,	"	100 - 1 H/B
100 boys	"	3	waterclosets,	"	100 - 1 W/C
100 boys	"	4	urinals,	"	100 - 2 UR
100 boys	"	4	handbasins,	"	100 - 1 H/B
100 pupils	"	2	drinking fountains,	"	100 - 1 D/F

342. AUDITORIUM

a. While the desirability of a well-appointed auditorium is admitted, economic considerations indicate that it is not until the pupil body reaches approximately 1000 that an auditorium as such is even feasible or necessary.

b. Schools with smaller pupil bodies should consider the establishment of combination gymnasium-assemblies, Item 333.

c. Where separate auditoriums are feasible they can be built to seat 500 pupils. The following suggestions are made:

d. Seating Space

Area: Allow 7 sq. ft. per pupil for seating and aisles
Sloping Floor: Concrete, linoleum or asphalt tile
Seats: Fixed
Galleries: Not desirable
Entrance: Convenient to pupil body, sufficiently large to handle pupil congestion, two ways of corridor approach to entrance in large schools.
Exits: Adequate and clearly marked
Darkening: Readily darkened with draw curtains or shades
House Lights: Switches at entrance, unless panel box on stage can be reached by lighted passage
Projector: A booth or place for a portable projector. A speaker cable from projector location to stage. One or two intermediate outlets are sometimes provided.
Vision: Good sight lines or unobstructed vision from any part of the house.
Audition: Good audition from any part of the house demands proper acoustic treatment. If the space below or above is used, sound insulation may be required.
Heat and Ventilation: Should be adequate and should be controlled independently of other areas.

342. AUDITORIUM (Cont'd)

e. Stage & Backstage

Proscenium Arch: At least ½ width of auditorium, 10 to 16 feet high. Height should not exceed 3/4 of width.
Stage: 3 ft. 4 inches to 4 ft. 0 inches high, 20 to 25 feet deep. Floor should be pine, forestage may be hardwood.
Wings: Unobstructed, full width of house, wing galleries 6 feet wide may be desirable.
Exits: One each side; one may be a scenery door 8 ft. x 8 ft. to school corridor.
Hatch: In roof with fusible link
Controls: All house and stage lights
Cable: To projector include sound
Electrical: Complete gear, spots, floods, dimmers, signals, etc. Footlights may be considered although they are not satisfactory for school purposes.

f. Dressing Rooms, Washrooms, Preparation & Rehearsal Space

Access from backstage to the school corridor is essential so that classrooms, and other areas may become available for rehearsals, dressing rooms, washrooms, and the preparation of sets.

g. Storage

Convenient storage should be provided for sets, costumes, etc.

343. CAFETERIA - Refer to Drawings #23, 24, & 25

a. Larger centralized schools, extensive transportation systems, and staggered lunch periods all contribute to the demand for cafeteria facilities in school buildings.

b. The limited time during which the cafeteria and kitchen facilities are in use, the modest charges to the pupil for food, and the number of partial or supplementary lunches served all contribute to abnormal capital cost which cannot be absorbed in popular charges. In general, only the cost of the food, its preparation, its serving, and the necessary cleaning up are paid for by the pupil. This, however, does not include the cost of heat, light, and power. It is essential that charges should be modest. This can be accomplished by limiting the full meal to a single choice, by obtaining assistance from pupils, and by providing supervision on the part of teachers and other staff members. In some cases, Boards have subsidized the cost of the food and its preparation.

c. The school cafeteria should accommodate ¼ of the pupil body at one sitting. This estimate is arrived at by assuming that 3/4 of the pupil body will patronize the cafeteria in three one-half hour relays. An allowance of 10 sq. ft. per pupil is ample; thus, an 800-pupil school requires a cafeteria of 2,000 sq. ft.

 CAFETERIA (Cont'd)

d. The cafeteria should be adjacent to facilities such as gymnasium, auditorium, or other areas which may be used for school and public assemblies. Since most schools grow in size, the design should permit an addition to the cafeteria at some future time. Daylight is desirable, but it may be sacrificed entirely since pupil occupancy is for very limited periods.

e. Easy flow of pupils through the cafeteria and into the body of the school is important. The flow should be from corridor to steam table, to cashier, to tables, to soiled dish counter, to corridor. The rate of flow past a well-organized steam table is not likely to be more than 12 per minute. Hence, it may be desirable to set up two or more steam tables in very large schools. A separate line may be formed for those who wish to supplement the lunch from home with milk or ice cream. It is unnecessary to provide separate cafeterias for boys and for girls.

f. Tables should be 2 ft. 6 inches wide and spaced 3 ft. 6 inches apart. Tables are usually placed end to end, and an allowance of 18 to 24 inches of linear table space allowed for each person. It is important that the length of the table and the position of the legs observe the modular dimension mentioned. The table tops should resist heat and be free of crevices or traps for food. Chairs or stools should be used. Stools are sometimes placed in racks underneath the table when not in use. This permits easy cleaning. Drinking fountains should be conveniently situated in the cafeteria, or in the corridor.

g. The cafeteria may be used for other purposes, such as assembly-room, projection room, music room, study or examination hall. If this is done, there should be a wall with doors tightly shutting off the cafeteria from the kitchen and serving area. The kitchen staff must have sufficient time before and after meals to keep the cafeteria clean and in good order.

h. General artificial illumination for cafeteria purposes may be 10 foot-candles. If the area is to be used for other purposes, such as study hall, the intensity should be raised to 20 or 30 foot-candles

i. It is essential that the cafeteria be easily cleaned. Floors may be linoleum, tile, or terrazzo. If there are windows, some should be screened. Ventilation may be general, but precautions must be taken that air is not drawn from the kitchen or steam-tables into the cafeteria.

j. In small schools of 300 pupils or less, it may be impossible to provide a cafeteria. In this event, one or two classrooms may be used. Every care should be exercised so that the rooms will be thoroughly cleaned and made suitable for classroom use as soon as the lunch period is over. A small kitchen may be required to serve these lunchroom-classrooms. The equipment should be kept to a minimum. It is doubtful if the food prepared should exceed a bowl of hot soup or a beverage.

344. KITCHEN - Refer to Drawings #23, 24, & 25

a. There is no standard arrangement for the school kitchen. Each school presents an individual problem. It depends upon the number and type of complete hot lunches to be served, the number and type of supplements, and the quantities in which food is purchased.

b. It is quite possible that the small school in a rural or isolated location has more need of hot-lunch facilities than the large school in a metropolitan area. However, its small enrolment might justify only such simple facilities as a dishpan, a small set of dishes, a few pots and pans, and some means of heating the food with coal, wood, or oil. The food might be prepared and served by the combined efforts of the teacher and the pupils. Some improvements could be made on these meagre arrangements, but not until the school has an enrolment of 300 to 500 pupils would a kitchen designed for quantity cooking be justified.

c. In general, about 30% of the pupils who patronize the cafeteria can be expected to take the full meal. The remainder are likely to bring lunch from home and in most cases will purchase such supplements as soup, ice-cream, or milk.

d. Kitchen layouts as shown on drawings #23, 24, & 25 provide facilities for the numbers indicated.

Drawing	Size of School	Size of Cafeteria	Cafeteria Patrons	Full Hot Meals	Supplements
#23	300 to 500 pupils	1250	225 to 375	70 to 115	155 to 260
24	500 to 800 "	2000	375 to 600	115 to 180	260 to 420
25	800 to 1200 "	3000	600 to 900	180 to 270	420 to 630

e. The kitchen should be on the ground floor of the building, and provision should be made for convenient receiving and shipping, including garbage removal. Abundant daylight is desirable, together with as high a ceiling as possible. Windows should be screened. Artificial light should be 20 to 30 foot-candles. The luminaires should be easily cleaned. Ventilation is important. Unless a high ceiling with good general ventilation which will expel all steam and cooking odours is available, it becomes necessary to instal hoods and exhaust fans over cooking apparatus and dishwashers. Since hoods collect grease, they should be constructed so as to permit easy cleaning. Unless the kitchen is free of steam, air-drying of dishes is not feasible. It is important that the movement of air be directly to the outside of the building and that the exhaust carry the discharge free of the building. Any movement of air between the kitchen and the cafeteria should be in the direction of the kitchen. As far as possible, all surfaces, including walls and floors, should be of an impervious character with coved corners which can be easily cleaned.

f. The kitchen and the serving counter should be shut off from the cafeteria by a wall and tightly shutting doors which will confine kitchen noises and odours to the kitchen when the cafeteria is in use for other purposes.

 KITCHEN (Cont'd)

g. The general arrangement of school kitchens and the placing of equipment must be most carefully planned to provide for proper work sequences. Some possible arrangements are shown on drawings #23, 24, & 25.

h. The equipment should be selected from the point-of-view of long-term economy. The first cost of stainless steel is comparatively high, but maintenance charges are low. Every consideration should be given to cleanliness, such as sweeping space under fixtures and absence of crevices and other places which harbour dirt, vermin, and pests.

i. Storage of both supplies and small equipment is essential. Generally, small equipment is kept in drawers or on racks and shelves close to the work-station concerned. It is desirable to have a small area with a receiving table where deliveries can be received, unpacked, checked, and put in storage or delivered directly to the kitchen. Good food storage must be conveniently located to both the kitchen and the receiving room. It must be properly ventilated and protected from vermin. This requires that it be easily cleaned and the temperature controlled.

j. Apart from the storeroom, refrigerated storage is required. In schools serving up to approximately 200 full meals and 400 supplements, the refrigeration may be in the kitchen in the form of a self-contained refrigerator. When the number of full meals served exceeds 200, a walk-in refrigerator should be considered in addition to the self-contained refrigerator. The amount of frozen food purchased will determine the need for deep-freeze refrigeration.

k. Facilities for garbage removal are essential. Depending upon the size of the kitchen, covered cans should be kept immediately adjacent to the shipping door or in a small room close to it. If the cans are kept in a room, it should be well ventilated and screened. The area in which the cans are kept should be provided with a floor drain and the floor graded to the drain. Hose-bibbs for hot and cold water should be immediately available so that cans may be washed and scalded out periodically.

l. Hot food preparation should be convenient to the hot counter in the serving area. In small schools the hot table could be omitted and hot food served directly from the surface of the stove. Hot food preparation involves the use of the range, the bakers' table, the cooks' table, and the hot counter. These items should be conveniently located to one another

m. Vegetable preparation should be located close to the point where supplies are delivered and also convenient to storage facilities. Vegetable preparation involves a table, sinks and drain boards where the necessary sorting, trimming, and cutting of vegetables is done. In larger kitchens a mechanical peeler is desirable.

n. Salad and sandwich preparation should be done on a counter with a sink located close to the serving counter and to the refrigerator.

o. Baking and dessert preparation should be near the hot-food area. Oven space may be located in ranges in schools serving up to 200 hot meals. In larger schools deck-type ovens should be installed.

 KITCHEN (Cont'd)

p. The serving counter should be located in the kitchen, not in the cafeteria. It should be arranged as indicated on the drawings. The rate of flow past a well-organized serving counter is 12 pupils a minute. This can be accelerated if a separate line is formed either in the serving area or in the cafeteria for those who wish to purchase supplements.

q. The dishes should be returned by the pupils through a dish-hatch to the soiled-dish counter. This counter should be screened from the pupils in the serving line. Refuse should be scraped from the dishes and dropped through the garbage hole to the garbage container underneath.

r. In a school with 300 to 500 pupils, a 3-compartment sink is satisfactory for dishwashing. The first compartment is a pre-rinse. In general, the hot-water supply for pre-rinse and washing is 120° to 140°. The final rinse should be at a temperature of 170° to 180°. This will require racks so that the dishes may be lifted and placed on the clean-dish table, which should have space for at least 3 racks of dishes. In larger schools a similar procedure is followed except that a dishwasher and a pre-rinse sink take the place of a 3-compartment sink. It will be necessary to introduce a booster to get a steady supply of hot water at a temperature of 180° for the final rinse.

s. A mop closet containing a sink should be conveniently located to the kitchen for the use of the kitchen staff. It may, however, be shared in common with the school caretaker.

t. Washroom facilities are required for the kitchen staff. In small schools these facilities may be shared in common with the school staff.

u. Kitchens present a relatively high fire hazard. Periodic cleaning, particularly with respect to the removal of grease from hoods and the prompt removal of combustible materials such as paper wrappings and excelsior will serve to reduce the fire hazard. A fire-resistent blanket and one or two fire extinguishers are essential pieces of fire-fighting equipment. Extinguishers may be carbon dioxide 10 lb. or dry chemical 4 lb. The local fire authorities should be requested to give instruction to the kitchen staff concerning the proper use of fire-fighting apparatus.

v. The extent to which a Board is liable as the result of serving bad or improperly prepared food which might cause food poisoning is a matter for legal decision. Boards may take out insurance to cover such emergencies if they so desire. If the Board employs a commercial caterer, the contract should provide that the Board is adequately protected for public liability.

w. Where several schools are concerned, considerable economy may be effected by the use of a centralized kitchen. The food can be prepared in such a kitchen and shipped in air-void containers to the schools concerned.

NOTE RE ELECTRICAL WORK
INDIVIDUAL SWITCHES WITH LOCK ON BOX AT EACH POWER MACHINE RECOMMENDED. MASTER SWITCH CONTROLLING ALL MACHINES NOT RECOMMENDED

24" x 36" PORTABLE CHALK BOARD.

POSSIBLE LOCATION OF DISTRIBUTION PANEL BOX IF FLOOR POWER TROUGH IS NOT USED.

TOOL CABINET

TOOL CABINET

RACK FOR VERTICAL STORAGE OF LUMBER AND BAR METALS

4'-6" WASH TROUGH

TACK BOARD OVER TROUGH

POWER TROUGH

OUTLET & SWITCH FOR FUTURE VACU DRAFT

FORGE IN DARKEST PART OF ROOM

FORGE AREA (CONCRETE FLOOR)

TOOL CABINET

PROJECT STORAGE RACK

TOOL CABINET

ALTERNATIVE POWER DISTRIBUTION SYSTEMS

(a) A SURFACE MOUNTED DISTRIBUTION PANEL BOX PLACED SO THAT EXPOSED CONDUIT CAN BE EXTENDED ALONG WALL AND DROPPED DOWN WHERE REQUIRED FOR POWER LEADS TO RUN BETWEEN SLEEPERS.

(b) POWER CONDUIT UNDER FLOOR FROM WHICH WIRING MAY BE FISHED BETWEEN SLEEPERS TO OTHER PARTS OF FLOOR. (SEE POWER TROUGH DETAIL BELOW.)

WOOD FLOOR ON SLEEPERS
(CONCRETE FLOOR IS NOT RECOMMENDED)

23'-0"

52'-0"

NOTE

1. FLEXIBILITY WHICH WILL PERMIT RE-ARRANGEMENT OF EQUIPMENT AT ANY TIME IS IMPORTANT. THIS IS PARTICULARLY TRUE FOR THE DISTRIBUTION OF POWER
2. SUBDIVISIONS OF ANY KIND FOR OFFICES, TOOL CRIBS, DRAUGHTING PAINT OR STORE ROOMS ARE NOT RECOMMENDED
3. DOORS OTHER THAN THE SINGLE DOOR TO THE SCHOOL CORRIDOR ARE UNNECESSARY
4. TOOL CABINETS INDICATED ▨ AND WORK BENCHES, DRAUGHTING TABLES, AND PORTABLE CHALK-BOARD ARE NOT USUALLY INCLUDED IN THE BUILDING CONTRACT. THE OTHER ITEMS SHOWN SHOULD BE INCLUDED IN THE CONTRACT.

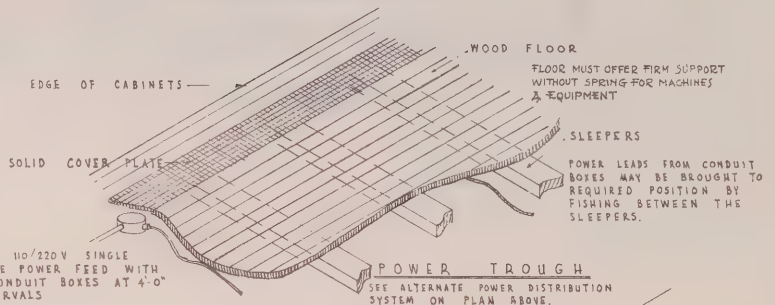
FLOOR PLAN

0 1 2 3 4 5 6 7 8 9 10

23' x 44'	1000 SQ. FT.
23' x 52'	1200 SQ. FT. (AS SHOWN ABOVE)
23' x 61'	1400 SQ. FT.

CEILING HEIGHT - MAY BE SAME AS CLASS ROOMS

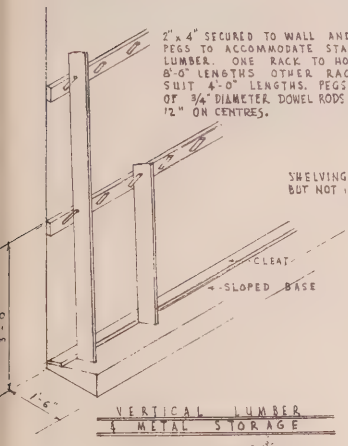
ALTERNATIVE SHOP SIZES


WOOD FLOOR
EDGE OF CABINETS
FLOOR MUST OFFER FIRM SUPPORT WITHOUT SPRING FOR MACHINES & EQUIPMENT
SLEEPERS
SOLID COVER PLATE
POWER LEADS FROM CONDUIT BOXES MAY BE BROUGHT TO REQUIRED POSITION BY FISHING BETWEEN THE SLEEPERS.

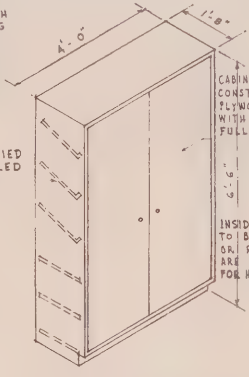
3 H.P. 110/220 V SINGLE PHASE POWER FEED WITH 4" CONDUIT BOXES AT 4'-0" INTERVALS

POWER TROUGH

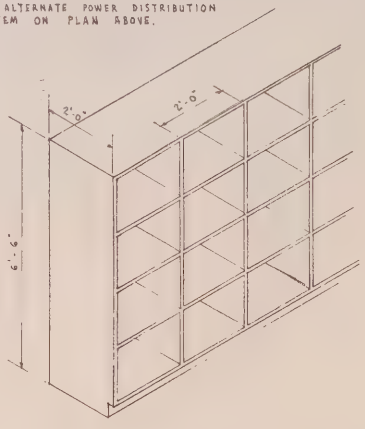
SEE ALTERNATE POWER DISTRIBUTION SYSTEM ON PLAN ABOVE.


2" x 4" SECURED TO WALL AND WITH PEGS TO ACCOMMODATE STANDING LUMBER. ONE RACK TO HOLD 8'-0" LENGTHS. OTHER RACK TO SUIT 4'-0" LENGTHS. PEGS TO BE OF 3/4" DIAMETER DOWEL RODS AT 12" ON CENTRES.
SHELVING SUPPLIED BUT NOT INSTALLED
CLEAT
SLOPED BASE
3'-0"
1'-6"

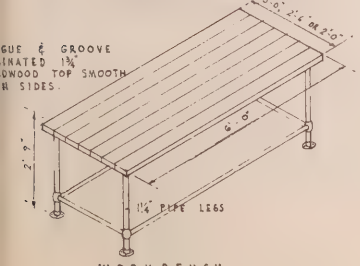
VERTICAL LUMBER & METAL STORAGE


4'-0"
1'-0"
CABINET OF SUBSTANTIAL CONSTRUCTION OF 3/4" PLYWOOD OR EQUIVALENT WITH SOLID SLAB TYPE FULL HEIGHT DOORS.
6'-6"
INSIDE OF CUPBOARD TO BE SMOOTH. SUNK OR RAISED PANELS ARE NOT DESIRABLE. FOR HANGING TOOLS

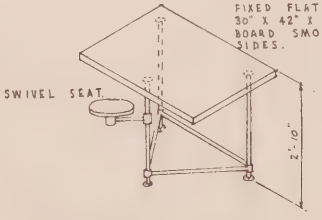
TOOL CABINET
TO BE FREE STANDING



PROJECT STORAGE RACK



WORK BENCH



DRAUGHTING TABLE

SUGGESTED LAYOUT OF GENERAL SHOP

(SECONDARY SCHOOLS)

ONTARIO DEPARTMENT OF EDUCATION

VOCATIONAL EDUCATION BRANCH

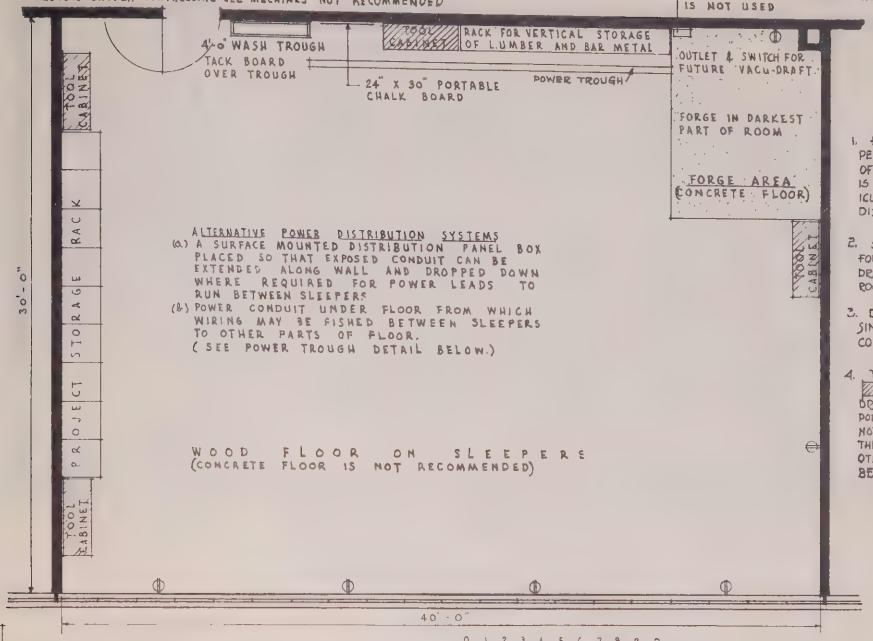
APPROVED BY... R. A. Beattie ..DIRECTOR

JANUARY 1951

DRAWING NO 1

NOTE RE ELECTRICAL WORK
INDIVIDUAL SWITCHES WITH LOCK ON BOX AT EACH POWER MACHINE RECOMMENDED.
MASTER SWITCH CONTROLLING ALL MACHINES NOT RECOMMENDED

POSSIBLE LOCATION OF DISTRIBUTION PANEL BOX IF FLOOR POWER TROUGH IS NOT USED



ALTERNATIVE POWER DISTRIBUTION SYSTEMS
(a.) A SURFACE MOUNTED DISTRIBUTION PANEL BOX PLACED SO THAT EXPOSED CONDUIT CAN BE EXTENDED ALONG WALL AND DROPPED DOWN WHERE REQUIRED FOR POWER LEADS TO RUN BETWEEN SLEEPERS
(b.) POWER CONDUIT UNDER FLOOR FROM WHICH WIRING MAY BE FISHED BETWEEN SLEEPERS TO OTHER PARTS OF FLOOR.
(SEE POWER TROUGH DETAIL BELOW.)

WOOD FLOOR ON SLEEPERS
(CONCRETE FLOOR IS NOT RECOMMENDED)

NOTE

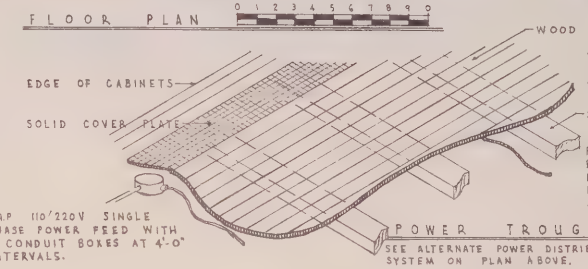
1. FLEXIBILITY WHICH WILL PERMIT REARRANGEMENT OF EQUIPMENT AT ANY TIME IS IMPORTANT. THIS IS PARTICULARLY TRUE FOR THE DISTRIBUTION OF POWER.
2. SUBDIVISIONS OF ANY KIND FOR OFFICES, TOOL CRIBS, DRAUGHTING, PAINT OR STORE ROOMS ARE NOT RECOMMENDED.
3. DOORS OTHER THAN THE SINGLE DOOR TO THE SCHOOL CORRIDOR ARE UNNECESSARY.
4. TOOL CABINETS INDICATED [▨] AND THE WORKBENCHES, DRAUGHTING TABLES AND PORTABLE CHALKBOARD ARE NOT USUALLY INCLUDED IN THE BUILDING CONTRACT. THE OTHER ITEMS SHOWN SHOULD BE INCLUDED IN THE CONTRACT.

FLOOR PLAN 0 1 2 3 4 5 6 7 8 9 0

30' x 33'	1000 SQ. FT.
30' x 40'	1200 SQ. FT (AS SHOWN ABOVE)
30' x 46'	1400 SQ. FT.

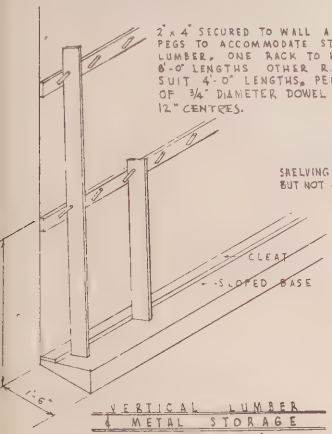
CEILING HEIGHT - MAY BE SAME AS CLASS ROOMS

ALTERNATIVE SHOP SIZES

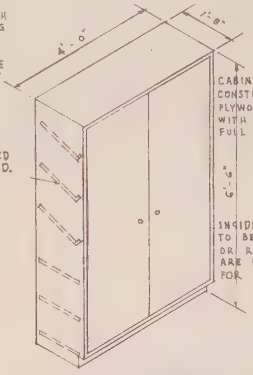

WOOD FLOOR
FLOOR MUST OFFER FIRM SUPPORT WITHOUT SPRING FOR MACHINES & EQUIPMENT.
EDGE OF CABINETS
SOLID COVER PLATE
SLEEPERS
POWER LEADS FROM CONDUIT BOXES MAY BE BROUGHT TO REQUIRED POSITION BY FISHING BETWEEN THE SLEEPERS.

3 H.P. 110/220 V. SINGLE PHASE POWER FEED WITH 4" CONDUIT BOXES AT 4'-0" INTERVALS.

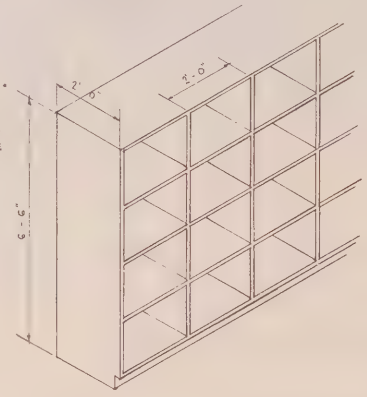
POWER TROUGH
SEE ALTERNATE POWER DISTRIBUTION SYSTEM ON PLAN ABOVE.


2" x 4" SECURED TO WALL AND WITH PEGS TO ACCOMMODATE STANDING LUMBER. ONE RACK TO HOLD 8'-0" LENGTHS OTHER RACK TO SUIT 4'-0" LENGTHS. PEGS TO BE OF ¾" DIAMETER DOWEL RODS AT 12" CENTRES.
SHELVING SUPPLIED BUT NOT INSTALLED.
CLEAT
SLOPED BASE
1'-6"

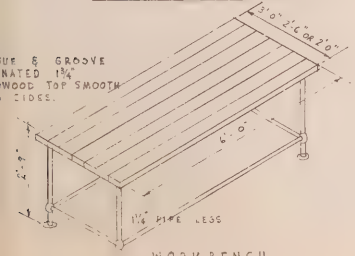
VERTICAL LUMBER & METAL STORAGE


1'-8"
4'-0"
CABINET OF SUBSTANTIAL CONSTRUCTION OF ¾" PLYWOOD OR EQUIVALENT WITH SOLID SLAB TYPE FULL HEIGHT DOORS
2'-6"
INSIDE OF CUPBOARD TO BE SMOOTH. SUNK OR RAISED PANELS ARE NOT DESIRABLE. FOR HANGING TOOLS.

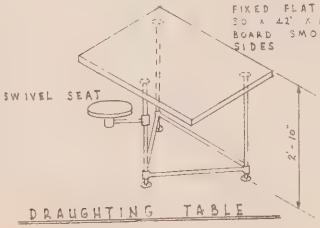
TOOL CABINET
TO BE FREE STANDING



PROJECT STORAGE RACK

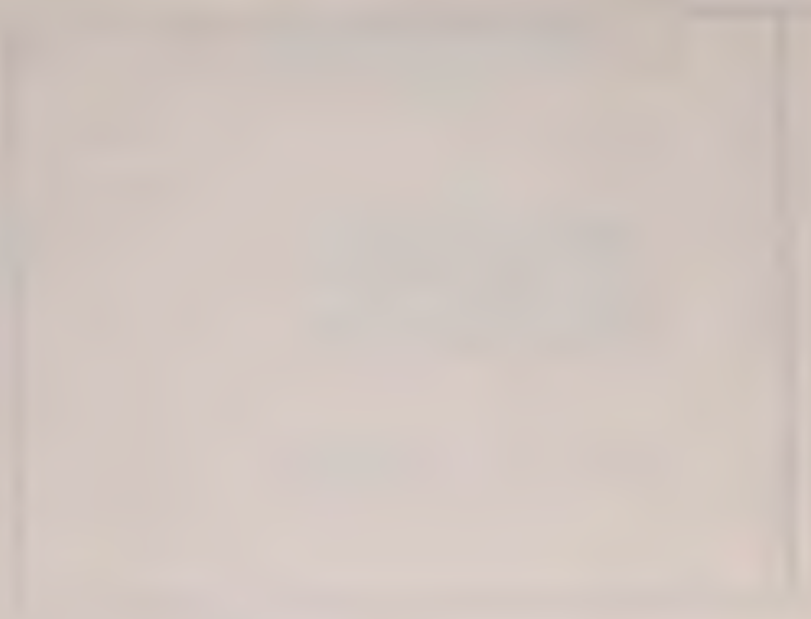


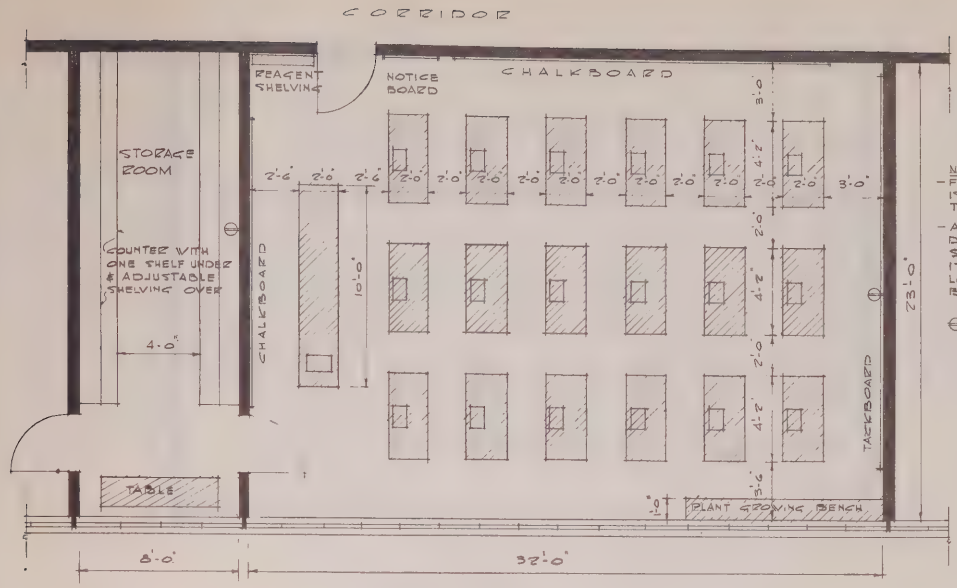
WORKBENCH



DRAUGHTING TABLE

SUGGESTED LAYOUT OF GENERAL SHOP
(SECONDARY SCHOOLS)
ONTARIO DEPARTMENT OF EDUCATION
VOCATIONAL EDUCATION BRANCH
APPROVED BY.... R. B. Bratty ... DIRECTOR
JANUARY 1951 DRAWING NO 2



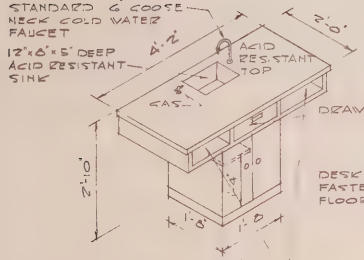


FLOOR PLAN

SCALE IN FEET — 0 1 2 3 4 5 6 7 8 9 10

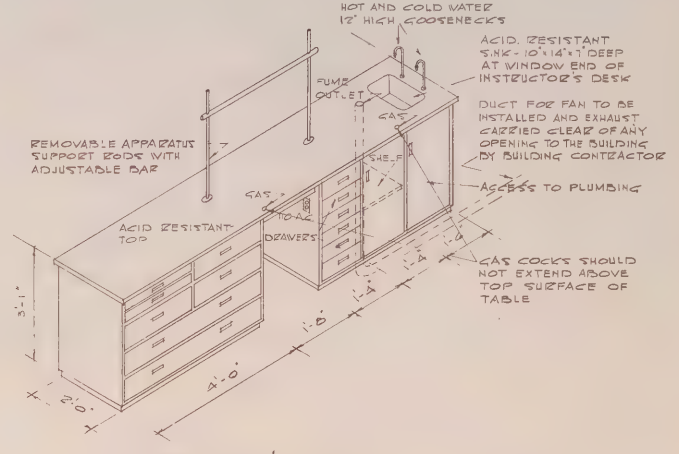
PLAN FOR A "TWO LAB." SCHOOL

ADJOINING LABS. WITH A COMMON STOREROOM SHOULD BE ARRANGED WITH INSTRUCTORS' DESKS AS SHOWN



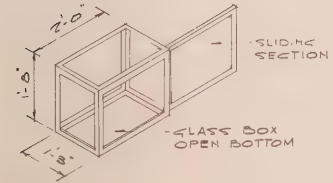
BOOK STORAGE SPACE 6½" HIGH OPEN ALL THE WAY THROUGH. DESK FITTED WITH A SINGLE DRAWER IN THE CENTRE EXTENDING BACK AS FAR AS THE SINK.

PUPILS' SCIENCE DESK

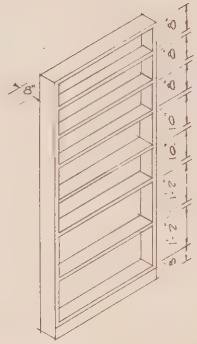

HOT AND COLD WATER 12" HIGH GOOSENECKS
ACID RESISTANT S.INK - 10"x14"x7" DEEP AT WINDOW END OF INSTRUCTOR'S DESK
FUME OUTLET
GAS
DUCT FOR FAN TO BE INSTALLED AND EXHAUST CARRIED CLEAR OF ANY OPENING TO THE BUILDING BY BUILDING CONTRACTOR
REMOVABLE APPARATUS SUPPORT RODS WITH ADJUSTABLE BAR
SHELF
ACCESS TO PLUMBING
ACID RESISTANT TOP
TO ALL DRAWERS
GAS COCKS SHOULD NOT EXTEND ABOVE TOP SURFACE OF TABLE
3'-1"
2'-0"
1'-0"
4'-0"

INSTRUCTOR'S DESK

NOTE
FOR A GENERAL SCIENCE LABORATORY WITH SELF-CONTAINED STORAGE SEE DRAWING Nº 4



FUME HOOD
(FOR USE OVER FUME OUTLET AT INSTRUCTOR'S DESK)

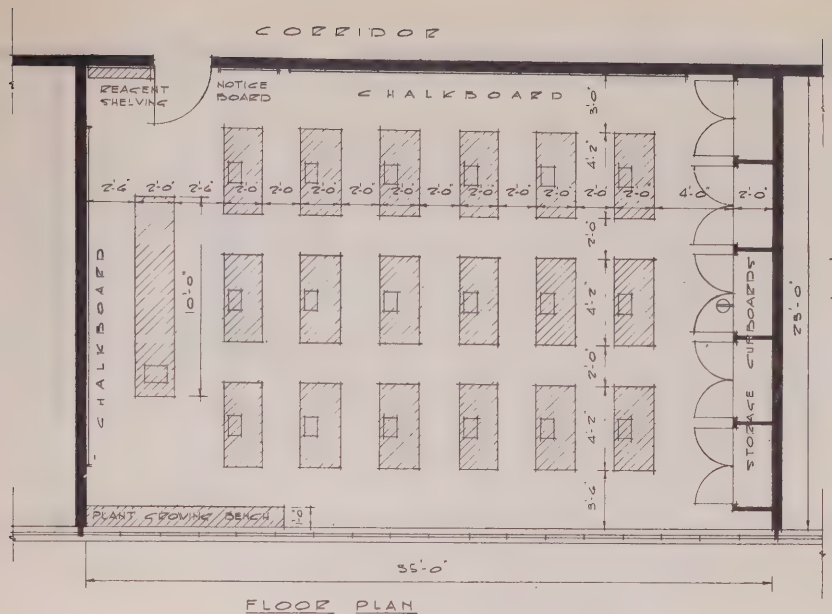


REAGENT SHELVING

SUGGESTED LAYOUT OF GENERAL SCIENCE LABORATORY

ONTARIO DEPARTMENT OF EDUCATION
SECONDARY EDUCATION

APPROVED BY A.L. Hooper SUPERINTENDENT
AUG. 1951 DRAWING Nº 3

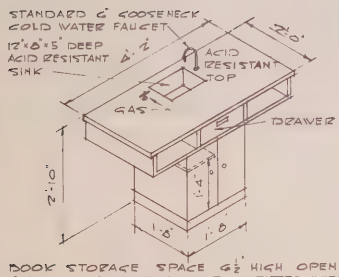


FLOOR PLAN

SCALE IN FEET 0 1 2 3 4 5 6 7 8 9 10

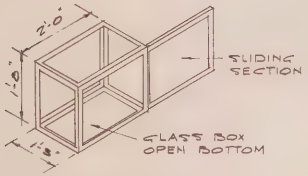
NOTE:
- FURNITURE INDICATED IS NOT USUALLY INCLUDED IN THE BUILDING CONTRACT.
- ALL NECESSARY GAS, WATER, DRAIN AND ELECTRIC CONNECTIONS SHOULD BE RUN TO EACH ITEM CONCERNED AND LOCATED AND INSTALLED BY THE BUILDING CONTRACTOR

ELECTRIC CONVENIENCE OUTLET



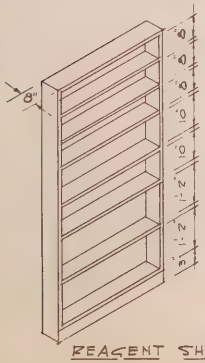
BOOK STORAGE SPACE 6½" HIGH OPEN ALL THE WAY THROUGH DESK FITTED WITH A SINGLE DRAWER IN THE CENTRE EXTENDING BACK AS FAR AS THE SINK

PUPILS' SCIENCE DESK

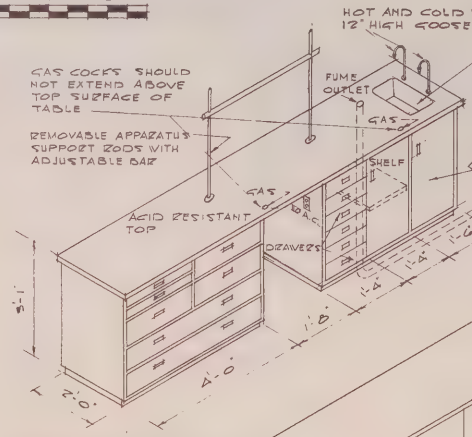


FUME HOOD

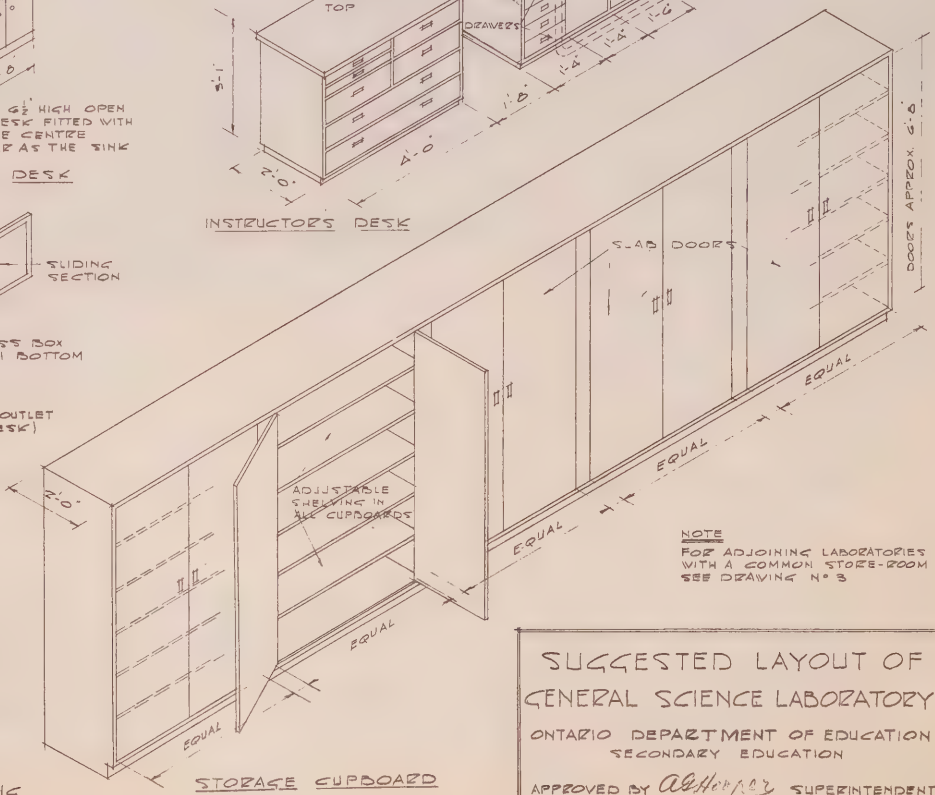
(FOR USE OVER FUME OUTLET AT INSTRUCTOR'S DESK)



REAGENT SHELVING


HOT AND COLD WATER 12" HIGH GOOSENECKS
ACID RESISTANT SINK 10"x14"x7" DEEP AT WINDOW END OF INSTRUCTOR'S DESK
DUCT FOR FAN TO BE INSTALLED AND EXHAUST CARRIED CLEAR OF ANY OPENING TO THE BUILDING BY BUILDING CONTRACTOR
ACCESS TO PLUMBING
GAS COCKS SHOULD NOT EXTEND ABOVE TOP SURFACE OF TABLE
FUME OUTLET
GAS
REMOVABLE APPARATUS SUPPORT RODS WITH ADJUSTABLE BAR
SHELF
ACID RESISTANT TOP
GAS
BOOK DRAWERS
3'-1"
2'-0"
4'-0"
1'-4"
1'-0"

INSTRUCTORS' DESK



STORAGE CUPBOARD

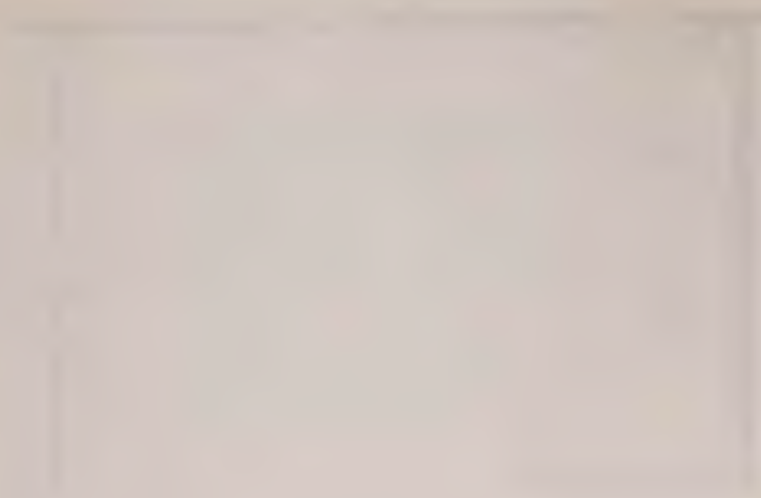
NOTE

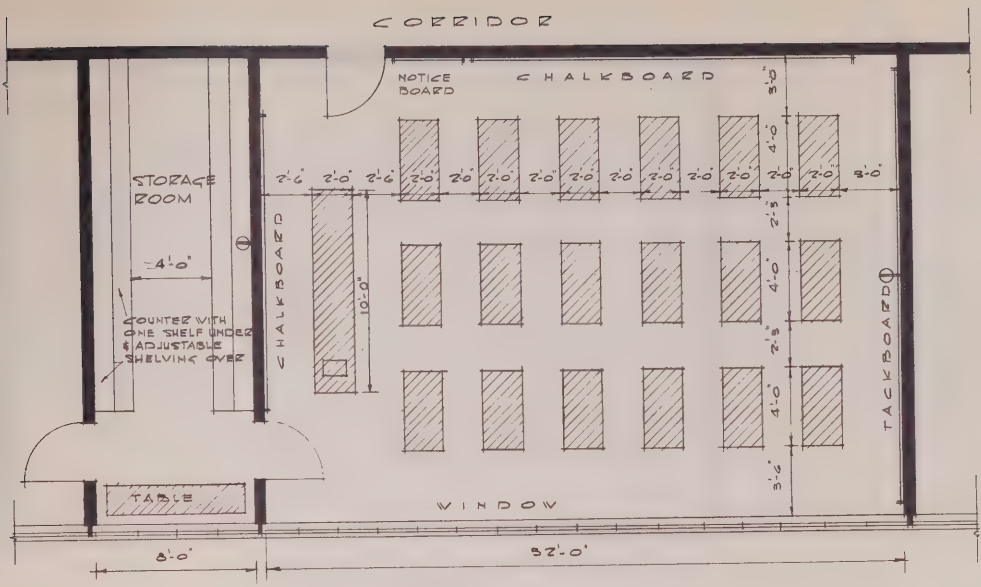
FOR ADJOINING LABORATORIES WITH A COMMON STORE-ROOM SEE DRAWING N° 3

SUGGESTED LAYOUT OF GENERAL SCIENCE LABORATORY

ONTARIO DEPARTMENT OF EDUCATION
SECONDARY EDUCATION

APPROVED BY A.G. Hope SUPERINTENDENT
AUG 1951 DRAWING N° 4





FLOOR PLAN

SCALE IN FEET 0 1 2 3 4 5 6 7 8 9 10

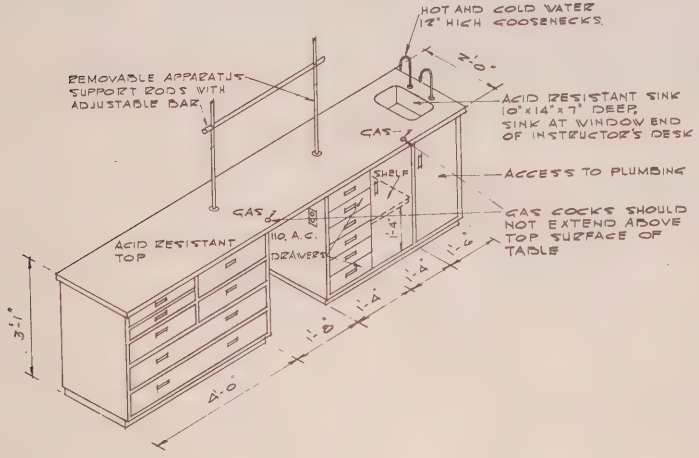
PLAN FOR A "TWO-LAB." SCHOOL

ADJOINING LABORATORIES WITH A COMMON STORE-ROOM SHOULD BE ARRANGED WITH THE INSTRUCTOR'S DESKS AS SHOWN.

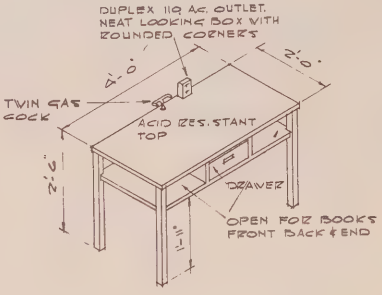
NOTE

- FURNITURE INDICATED ▨ IS NOT USUALLY INCLUDED IN THE BUILDING CONTRACT.
- ALL NECESSARY GAS, WATER, DRAINS AND ELECTRIC CONNECTIONS SHOULD BE RUN TO EACH ITEM CONCERNED AND CAREFULLY LOCATED AND INSTALLED BY THE BUILDING CONTRACTOR.
- IT IS ESSENTIAL THAT FURNITURE CAN BE READILY INSTALLED WITHOUT DAMAGE OR CUTTING.

⊖ ELECTRIC CONVENIENCE OUTLET



INSTRUCTOR'S DESK



PUPILS' PHYSICS DESK

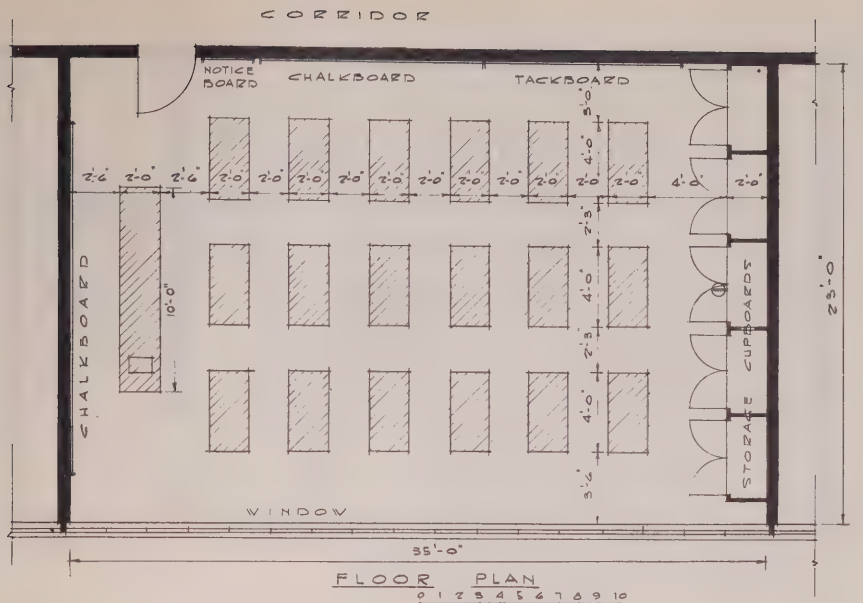
NOTE

1. D.C. POWER IS REQUIRED IN PHYSICS LABORATORIES. IT CAN BE OBTAINED BY USING DRY CELLS OR STORAGE BATTERIES, OR BY THE USE OF PORTABLE RECTIFIERS PLUGGED INTO ANY OF THE 110 V.A.C. OUTLETS. BATTERIES AND RECTIFIERS ARE REGARDED AS LABORATORY EQUIPMENT, WHILE A CONVERTER MAY BE INSTALLED AT SOME 'CENTRAL' POINT AND D.C. DISTRIBUTED TO PUPILS' DESKS, IT IS EXPENSIVE AND IS NOT ESSENTIAL.
2. THE STOREROOM IS USED IN COMMON WITH AN ADJACENT LABORATORY. FOR A PHYSICS LABORATORY WITH SELF-CONTAINED STORAGE FACILITIES, SEE DRAWING NUMBER 8

SUGGESTED LAYOUT OF PHYSICS LABORATORY

ONTARIO DEPARTMENT OF EDUCATION
SECONDARY EDUCATION

APPROVED BY A.L. Hooper SUPERINTENDENT
AUG. 1961
DRAWING No 5



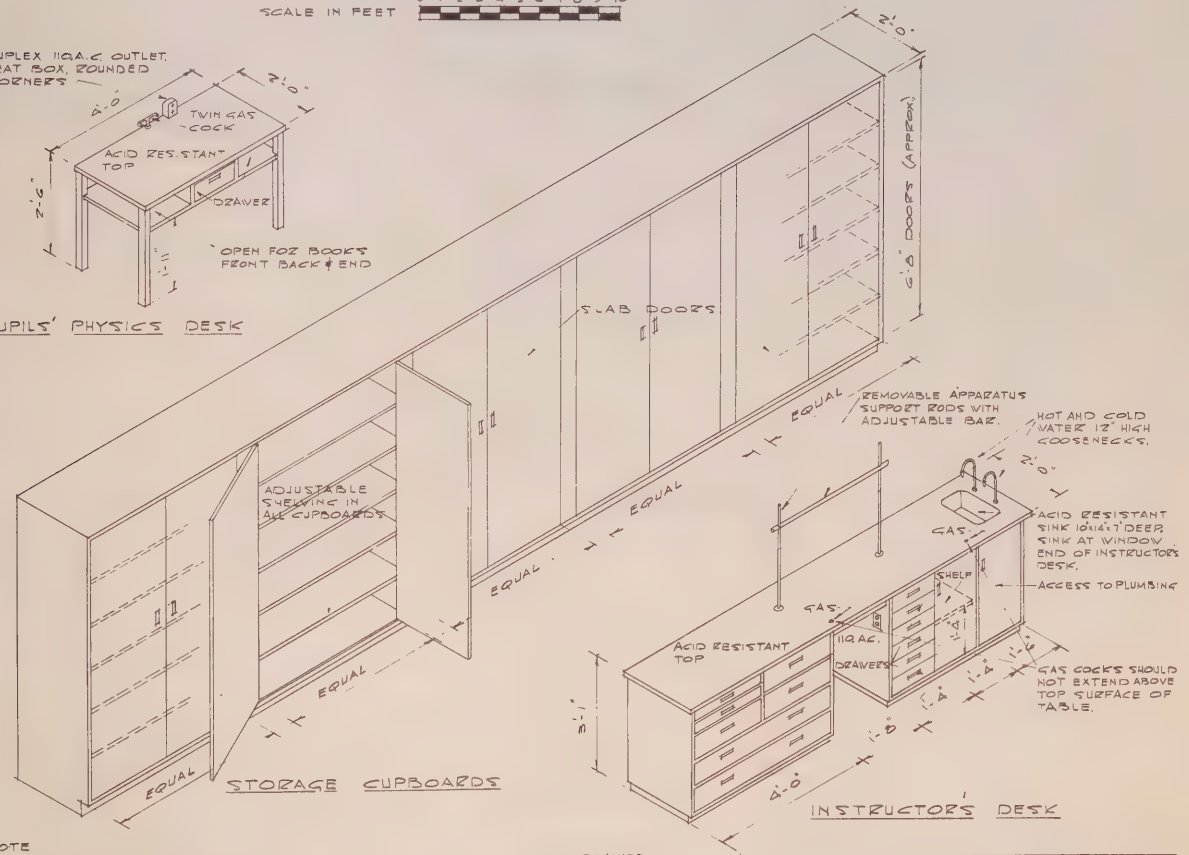
FLOOR PLAN

SCALE IN FEET 0 1 2 3 4 5 6 7 8 9 10

NOTE
- FURNITURE INDICATED ▨ IS NOT USUALLY INCLUDED IN THE BUILDING CONTRACT.
- ALL NECESSARY GAS, WATER, DRAINS AND ELECTRIC CONNECTIONS SHOULD BE RUN TO EACH ITEM CONCERNED AND CAREFULLY LOCATED AND INSTALLED BY THE BUILDING CONTRACTOR.
- IT IS ESSENTIAL THAT FURNITURE CAN BE READILY INSTALLED WITHOUT DAMAGE OR CUTTING.

⊖ ELECTRIC CONVENIENCE OUTLET

PUPILS' PHYSICS DESK



STORAGE CUPBOARDS

INSTRUCTOR'S DESK

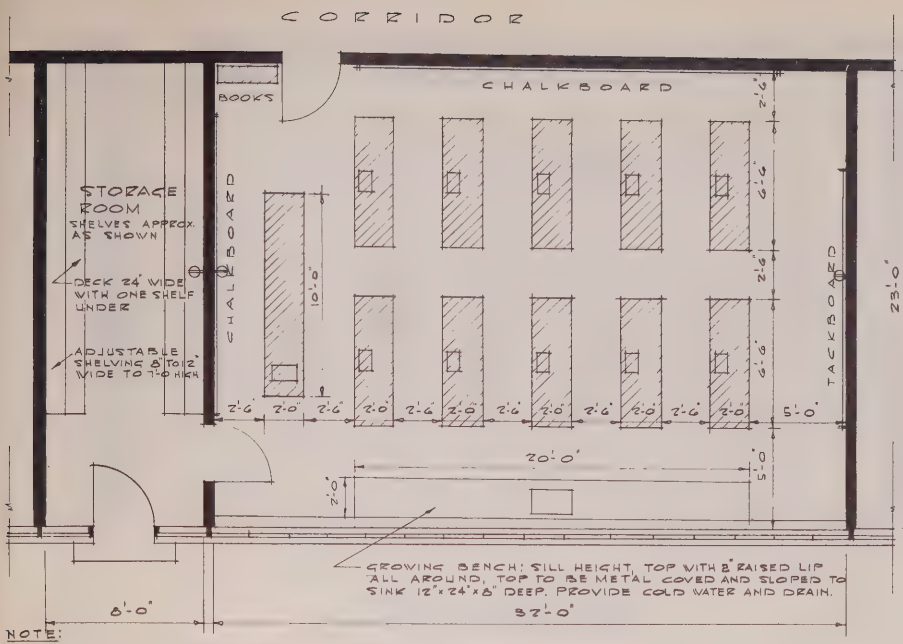
NOTE

1. D. C. POWER IS REQUIRED IN PHYSICS LABORATORIES. IT CAN BE OBTAINED BY USING DRY CELLS OR STORAGE BATTERIES OR BY THE USE OF PORTABLE RECTIFIERS PLUGGED INTO ANY OF THE 110 V. A.C. OUTLETS. BATTERIES AND RECTIFIERS ARE REGARDED AS LABORATORY EQUIPMENT, WHILE A CONVERTER MAY BE INSTALLED AT SOME CENTRAL POINT AND D.C. DISTRIBUTED TO PUPILS' DESKS, IT IS EXPENSIVE AND IS NOT ESSENTIAL.
2. SELF-CONTAINED STORAGE FACILITIES ARE PROVIDED IN THIS LABORATORY. AN ALTERNATIVE METHOD USING A STORE ROOM IN COMMON WITH AN ADJACENT LABORATORY IS SHOWN ON DRAWING NUMBER 5

SUGGESTED LAYOUT OF PHYSICS LABORATORY

ONTARIO DEPARTMENT OF EDUCATION
SECONDARY EDUCATION

APPROVED BY A. S. Hooper SUPERINTENDENT
AUG. 1951. DRAWING N° 6



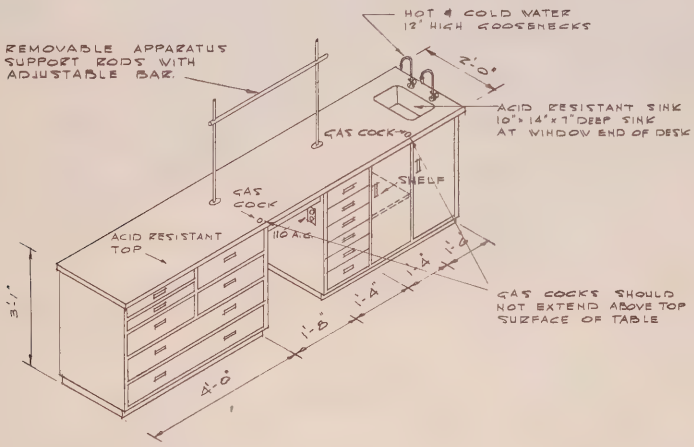
NOTE

- FURNITURE INDICATED [▨] IS NOT USUALLY INCLUDED IN THE BUILDING CONTRACT.
- ALL NECESSARY GAS, WATER, DRAINS AND ELECTRIC CONNECTIONS SHOULD BE RUN TO EACH ITEM CONCERNED AND CAREFULLY LOCATED AND INSTALLED BY THE BUILDING CONTRACTOR.
- IT IS ESSENTIAL THAT FURNITURE CAN BE READILY INSTALLED WITHOUT DAMAGE OR CUTTING.
- [⊖] ELECTRIC CONVENIENCE OUTLET.
- IF THE AGRICULTURE ROOM IS ADJACENT TO A SCIENCE OR PHYSICS ROOM, THE STORAGE ROOM MAY BE SHARED IN COMMON AND A DOOR PROVIDED.

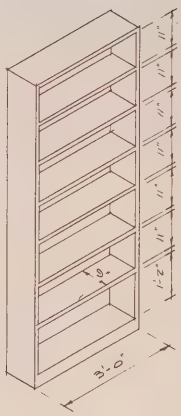
NOTE:
IF ON GROUND FLOOR GRADE ENTRANCE TO STORAGE ROOM IS DESIRABLE, IT MAY BE OMITTED IF THE AGRICULTURE ROOM IS CONVENIENTLY LOCATED TO ONE OF THE CORRIDOR EXITS FROM THE BUILDING.

FLOOR PLAN

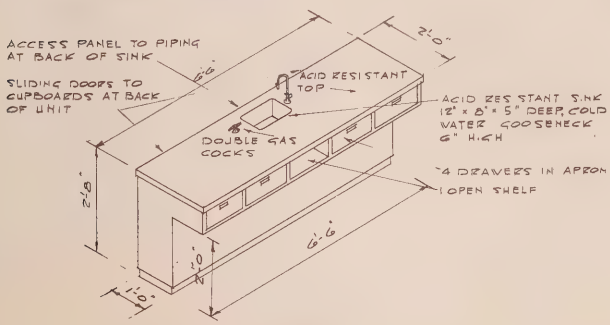
SCALE IN FEET 0 1 2 3 4 5 6 7 8 9 10



INSTRUCTORS DESK



BOOKSHELVES

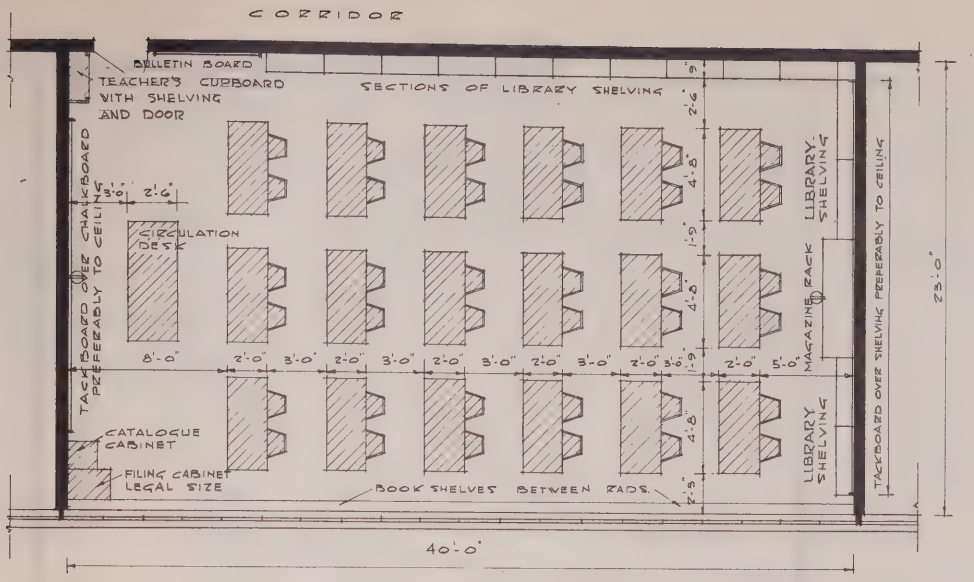

ACCESS PANEL TO PIPING AT BACK OF SINK
SLIDING DOORS TO CUPBOARDS AT BACK OF UNIT
6'-6"
2'-0"
ACID RESISTANT TOP
ACID RESISTANT SINK 12" x 8" x 5" DEEP, COLD WATER GOOSENECK 6" HIGH
DOUBLE GAS COCKS
4 DRAWERS IN APRON
1 OPEN SHELF
2'-8"
6'-6"
1'-0"

PUPILS' DESK

SUGGESTED LAYOUT OF AGRICULTURE ROOM

ONTARIO DEPARTMENT OF EDUCATION
VOCATIONAL EDUCATION BRANCH

APPROVED BY K. S. Piatti DIRECTOR
JUNE 1951 DRAWING NO. 7

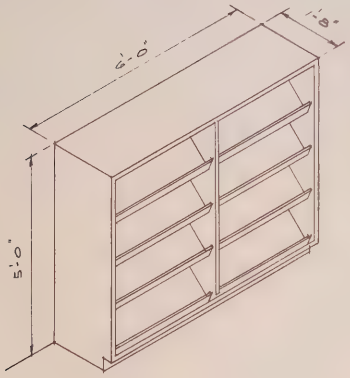


FLOOR PLAN

SCALE IN FEET 0 1 2 3 4 5 6 7 8 9 10

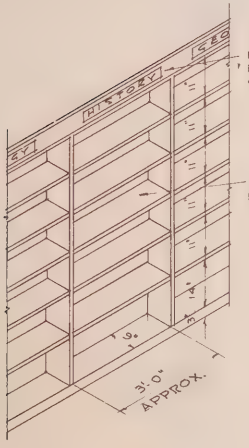
NOTE
— ALL ITEMS EXCEPT THOSE SHOWN SHOULD BE INCLUDED IN THE BUILDING CONTRACT.

ELECTRIC CONVENIENCE OUTLET.

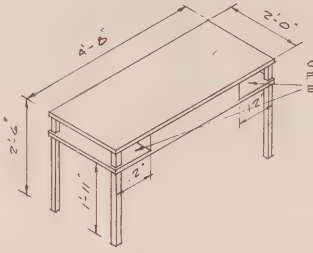


SECTION

MAGAZINE RACK



LIBRARY SHELVING

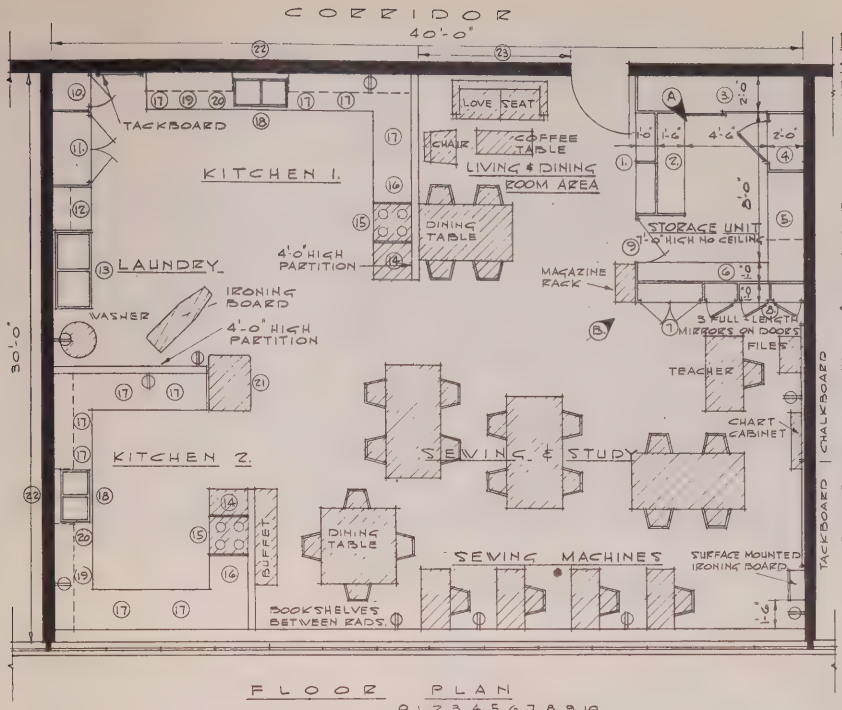


LIBRARY TABLE

SUGGESTED LAYOUT OF LIBRARY CLASSROOM

ONTARIO DEPARTMENT OF EDUCATION
SECONDARY EDUCATION

APPROVED BY A. H. Hoopes SUPERINTENDENT
JUNE 1951 DRAWING N° 8



FLOOR PLAN

SCALE IN FEET 0 1 2 3 4 5 6 7 8 9 10

NOTES

STORAGE UNIT

1. 24 SECTIONS FOR PUPILS' NOTEBOOKS.
2. OPEN SHELVING FOR TOTE BOXES; 1'-4" BETWEEN SHELVES.
3. WARDROBE; PROVIDE 2 REMOVABLE HANGING RODS, 3'-0" & 5'-6" FROM FLOOR; PAIR SLIDING DOORS.
4. TEACHER'S CUPBOARD; DOOR FITTED WITH LOCK. FULL LENGTH MIRROR OUTSIDE DOOR, COAT RAIL WITH SHELF OVER.
5. OPEN SPACE FOR FOLDING BED WITH SHELVES OVER TOP.
6. OPEN SHELVING FOR TOTE BOXES: 1'-4" BETWEEN SHELVES.
7. SUPPLY CUPBOARD, PAIR OF DOORS WITHOUT MULLION, DOORS FITTED WITH LOCK. PROVIDE 8 SHELVES WHICH ARE FULLY ADJUSTABLE.
8. SUPPLY CUPBOARDS: DOORS WITH LOCKS. MIRRORS ON OUTSIDE OF 3 DOORS. PROVIDE 8 FULLY ADJUSTABLE SHELVES.
9. ENTRANCE DOOR FITTED WITH LOCK.

LAUNDRY

10. BROOM CUPBOARD WITH SPACE FOR 1 PORTABLE METAL IRONING BOARD WITH STAND.
11. TOWEL HANGING CUPBOARD 4'-0" WIDE WELL VENTILATED FOR DRYING, HEAT OR FORCED DRAUGHT NOT REQUIRED FIT WITH RODS.
12. LAUNDRY CABINETS WITH WORK TOP, DRAWERS AND CUPBOARDS.
13. LAUNDRY TUBS; PEDESTAL TYPE; NOT CLOSED-IN BELOW. 36" TO RIM

KITCHEN

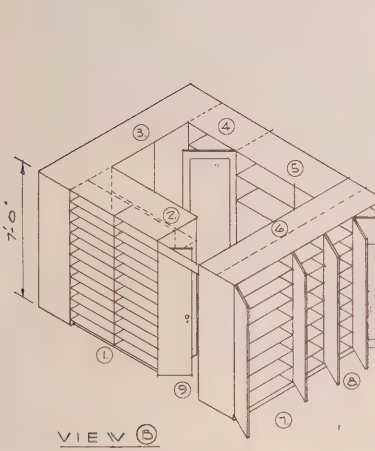
14. WORK SURFACE: MAY BE PART OF STOVE OR AN INDEPENDENT PORTABLE CABINET.
15. STOVE: GAS OR ELELECTRIC. PROVIDE ELECTRIC OR GAS CONNECTION.
16. TRAY RACK
17. CUPBOARD WITH ONE LOOSE SHELF.
18. SINK WITH VENTILATED CUPBOARD BELOW, NO SHELF.
19. PULL-OUT TOWEL RACK; VENTILATED.
20. DRAWERS - TOP DRAWER 4", SECOND DRAWER 6", BOTTOM 2 DRAWERS EQUAL.
21. REFRIGERATOR
22. OVER SINK - BULLETIN BOARD, CONCEALED LIGHT.

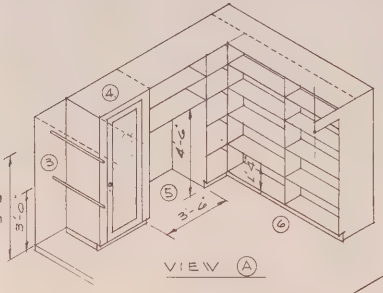
LIVING & DINING ROOM AREA

23. WALL ON LIVING ROOM SIDE TO BE KEPT CLEAR OF PIPES, CLOCKS, P.A. SYSTEMS, AND PANEL BOXES, TO PERMIT PICTURE HANGING.

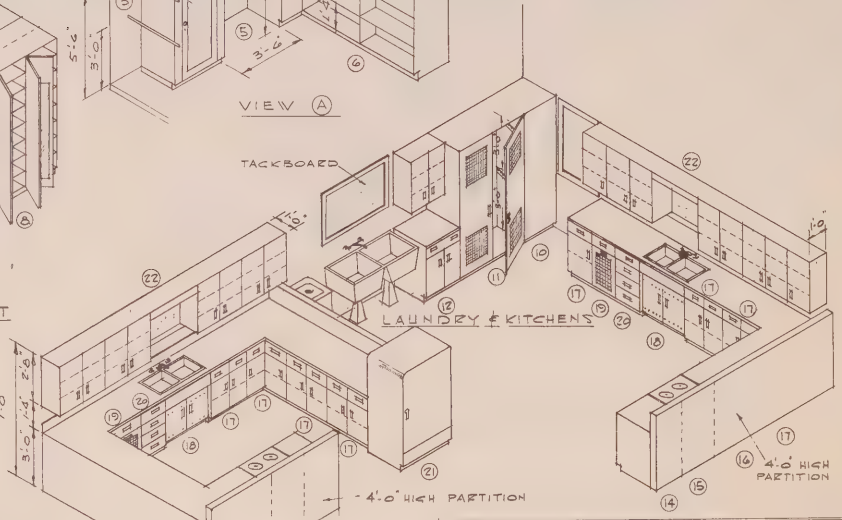
GENERAL NOTES

- ALL ITEMS EXCEPT THOSE SHOWN ▨ SHOULD BE INCLUDED IN THE BUILDING CONTRACT.
- ELECTRIC POWER OR GAS SHOULD BE BROUGHT TO STOVE LOCATIONS BY BUILDING CONTRACTOR.
- ⊖ ELECTRIC CONVENIENCE OUTLET.

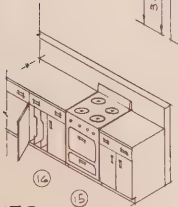




STORAGE UNIT



LAUNDRY & KITCHENS



VIEW OF UNITS (14) (15) (16) OF KITCHEN No 1

SUGGESTED LAYOUT OF HOUSEHOLD ECONOMICS ROOM

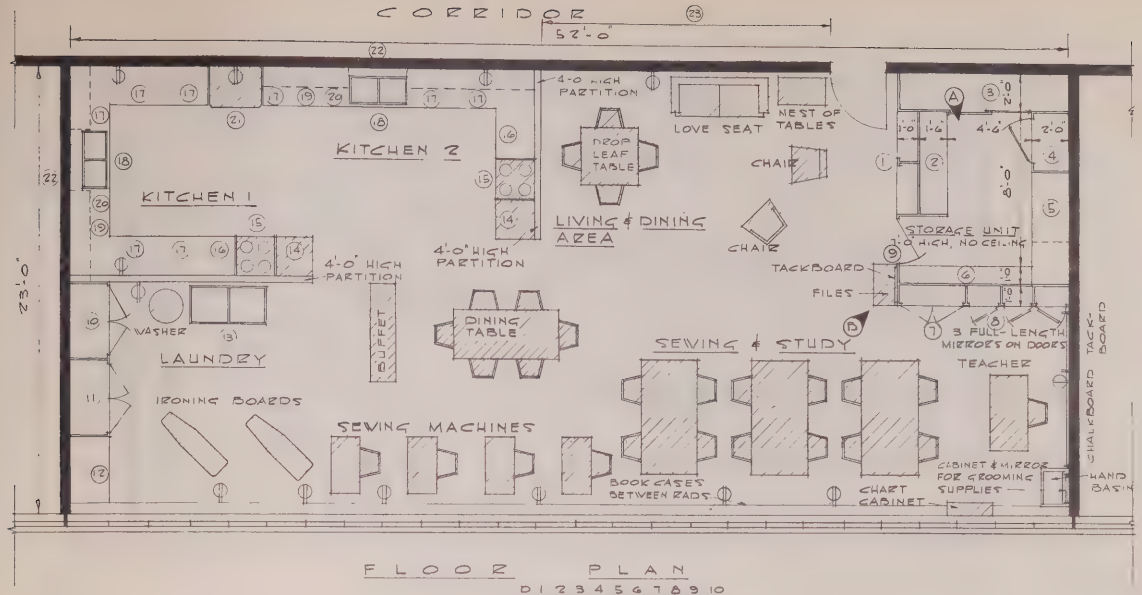
1,200 SQ. FT.

ONTARIO DEPARTMENT OF EDUCATION

VOCATIONAL EDUCATION BRANCH

APPROVED BY R. A. Beattie DIRECTOR

JUNE 1951. DRAWING No 9



FLOOR PLAN

SCALE IN FEET 0 1 2 3 4 5 6 7 8 9 10

NOTES

STORAGE UNIT

1. 24 SECTIONS FOR PUPILS' NOTEBOOKS
2. OPEN SHELVING FOR TOTE BOXES: 1'-4" BETWEEN SHELVES
3. WARDROBE: PROVIDE 2 REMOVABLE HANGING RODS 3'-0" & 5'-6" FROM FLOOR, PAIR SLIDING DOORS
4. TEACHER'S CUPBOARD; DOOR FITTED WITH LOCK. FULL LENGTH MIRROR OUTSIDE DOOR. COAT RAIL WITH SHELF OVER
5. OPEN SPACE FOR FOLDING BED WITH SHELVES OVER TOP.
6. OPEN SHELVING FOR TOTE BOXES 1'-4" BETWEEN SHELVES.
7. SUPPLY CUPBOARD, PAIR OF DOORS WITHOUT MULLION. DOORS FITTED WITH LOCK PROVIDE 8 SHELVES WHICH ARE FULLY ADJUSTABLE.
8. SUPPLY CUPBOARDS: DOORS WITH LOCKS. MIRRORS ON OUTSIDE OF 3 DOORS. PROVIDE 8 FULLY ADJUSTABLE SHELVES.
9. ENTRANCE DOOR FITTED WITH LOCK.

LAUNDRY

10. BROOM CUPBOARD WITH SPACE FOR 2 PORTABLE METAL IRONING BOARDS WITH STAND.
11. TOWEL HANGING CUPBOARD 4'-0" WIDE WELL VENTILATED FOR DRYING. HEAT OR FORCED DRAUGHT NOT REQUIRED FIT WITH RODS.
12. LAUNDRY CABINET WITH WORK TOP, DRAWERS & CUPBOARDS
13. LAUNDRY TUBS, PEDESTAL TYPE, NOT CLOSED IN BELOW, 36" TO RIM

KITCHEN

14. WORK SURFACE: MAY BE PART OF STOVE, OR AN INDEPENDENT PORTABLE CABINET.
15. STOVE + GAS OR ELECTRIC, PROVIDE ELECTRIC OR GAS CONNECTION
16. TRAY RACK
17. CUPBOARD WITH ONE LOOSE SHELF
18. SINK WITH VENTILATED CUPBOARD BELOW, NO SHELF.
19. PULL-OUT TOWEL RACK, VENTILATED
20. DRAWERS - TOP DRAWER 4" SECOND DRAWER 6" BOTTOM 7 DRAWERS EQUAL.
21. REFRIGERATOR - ALLOW 3'-0" REFRIG. SPACE
22. OVER SINK - BULLETIN BOARD, CONCEALED LIGHT.

LIVING ROOM AREA

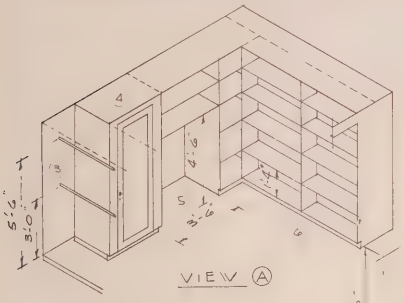
23. WALL ON LIVING ROOM SIDE TO BE KEPT CLEAR OF PIPES, P.A. SYSTEMS AND PANEL BOXES, TO PERMIT PICTURE HANGING.

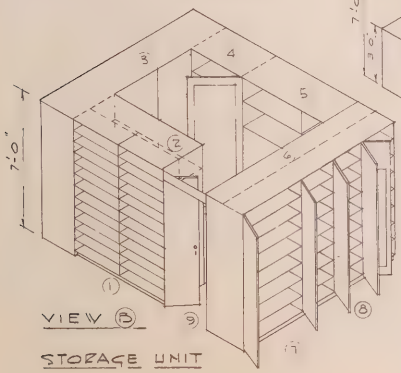
GENERAL NOTES

— ALL ITEMS EXCEPT THOSE SHOWN ▭ SHOULD BE INCLUDED IN THE BUILDING CONTRACT.

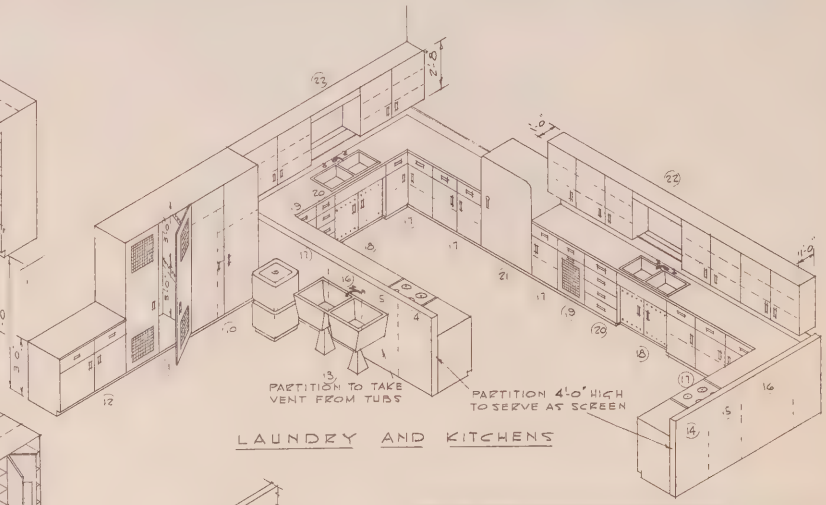
— ELECTRIC POWER OR GAS SHOULD BE BROUGHT TO STOVE LOCATIONS BY BUILDING CONTRACTOR.

⊖ ELECTRIC CONVENIENCE OUTLET.

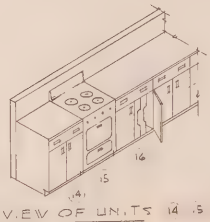




STORAGE UNIT



LAUNDRY AND KITCHENS



VIEW OF UNITS 14, 15, 16 OF KITCHEN No 1

SUGGESTED LAYOUT OF HOUSEHOLD ECONOMICS ROOM

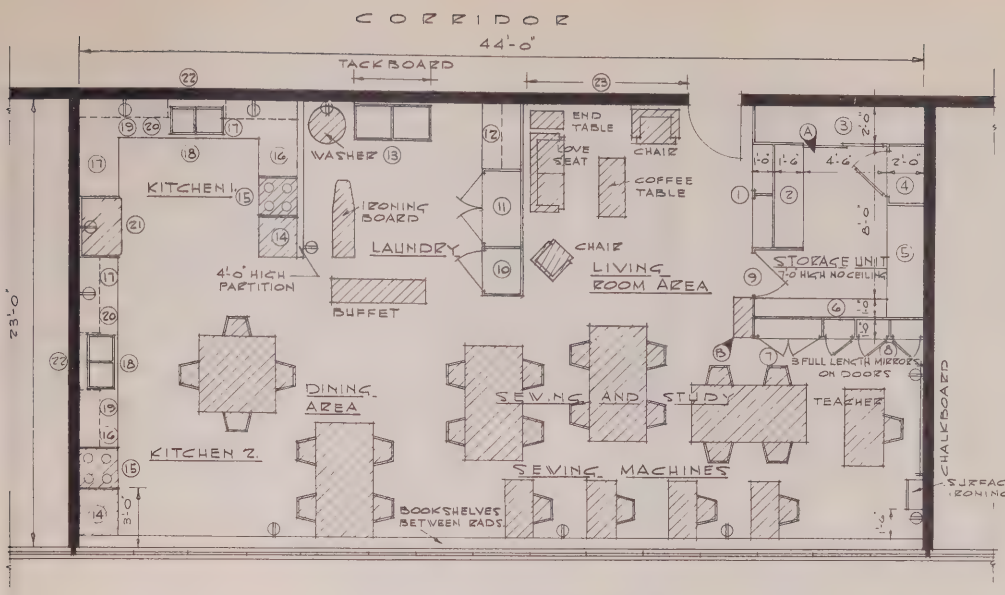
1200 SQ. FT. (APPROX.)

ONTARIO DEPARTMENT OF EDUCATION

VOCATIONAL EDUCATION BRANCH

APPROVED BY K. A. Beattie DIRECTOR

JUNE 1951 DRAWING No 10



FLOOR PLAN

SCALE IN FEET 0 1 2 3 4 5 6 7 8 9 10

NOTES

STORAGE UNIT

1. 24 SECTIONS FOR PUPILS' NOTEBOOKS.
2. OPEN SHELVING FOR TOTE BOXES: 1'-4" BETWEEN SHELVES.
3. WARDROBE, PROVIDE 2 REMOVABLE HANGING RODS 3'-0" & 5'-6" FROM FLOOR, PAIR SLIDING DOORS.
4. TEACHER'S CUPBOARD; DOOR FITTED WITH LOCK; FULL LENGTH MIRROR OUTSIDE DOOR. COAT RAIL WITH SHELF OVER.
5. OPEN SPACE FOR FOLDING BED WITH SHELVES OVER TOP.
6. OPEN SHELVING FOR TOTE BOXES 1'-4" BETWEEN SHELVES.
7. SUPPLY CUPBOARD, PAIR OF DOORS WITHOUT MULLION; DOORS FITTED WITH LOCK; PROVIDE 6 FULLY ADJUSTABLE SHELVES.
8. SUPPLY CUPBOARDS; DOORS WITH LOCKS, MIRRORS ON OUTSIDE OF 3 DOORS.
9. ENTRANCE DOOR FITTED WITH LOCK.

LAUNDRY

10. BROOM CUPBOARD WITH SPACE FOR 1 PORTABLE METAL IRONING BOARD WITH STAND.
11. TOWEL HANGING CUPBOARD 4'-0" WIDE WELL VENTILATED FOR DRYING, HEAT OR FORCED DRAUGHT NOT REQUIRED FIT WITH RODS.
12. LAUNDRY CABINETS WITH WORK TOP, DRAWERS & CUPBOARDS.
13. LAUNDRY TUBS; PEDESTAL TYPE; NOT CLOSED-IN BELOW, 36 TO RIM.

KITCHEN

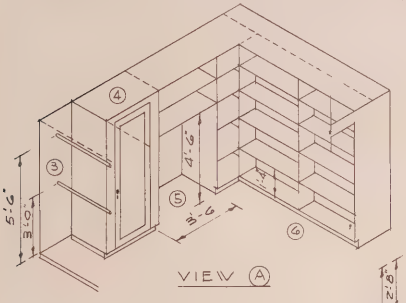
14. WORK SURFACE: MAY BE PART OF STOVE, OR AN INDEPENDENT PORTABLE CABINET.
15. STOVE; GAS OR ELECTRIC, PROVIDE ELECTRIC OR GAS CONNECTION.
16. TRAY RACK.
17. CUPBOARD WITH ONE LOOSE SHELF.
18. SINK WITH VENTILATED CUPBOARD BELOW, NO SHELF.
19. PULL-OUT TOWEL RACK, VENTILATED.
20. DRAWERS - TOP DRAWER 4" SECOND DRAWER 6", BOTTOM 2 DRAWERS EQUAL.
21. REFRIGERATOR - ALLOW 3'-0" REFRIG. SPACE.
22. OVER SINK - BULLETIN BOARD, CONCEALED LIGHT

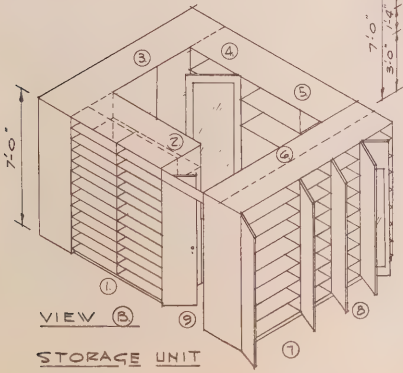
LIVING ROOM AREA

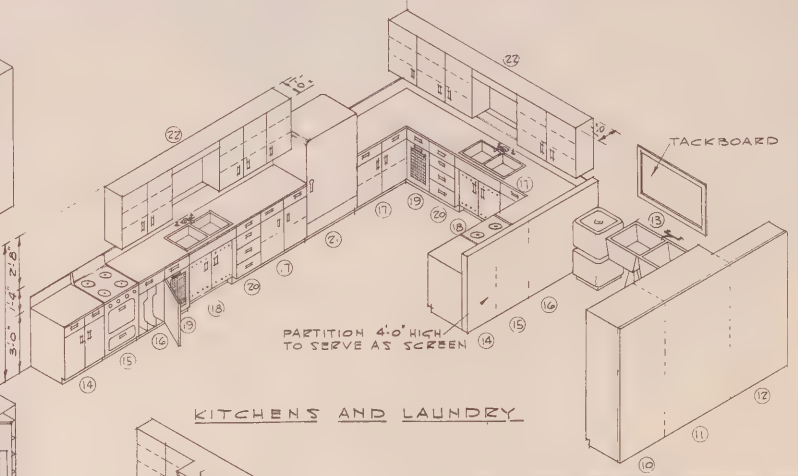
23. WALL ON LIVING ROOM SIDE TO BE KEPT CLEAR OF PIPES, P.A. SYSTEMS AND PANEL BOXES TO PERMIT PICTURE HANGING.

GENERAL NOTES

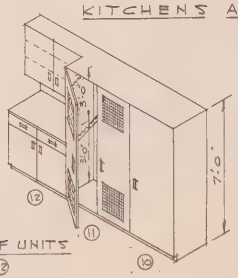
— ALL ITEMS EXCEPT THOSE SHOWN [▨] SHOULD BE INCLUDED IN THE BUILDING CONTRACT
— ELECTRIC POWER OR GAS SHOULD BE BROUGHT TO STOVE LOCATIONS BY BUILDING CONTRACTORS.
⊖ ELECTRIC CONVENIENCE OUTLET



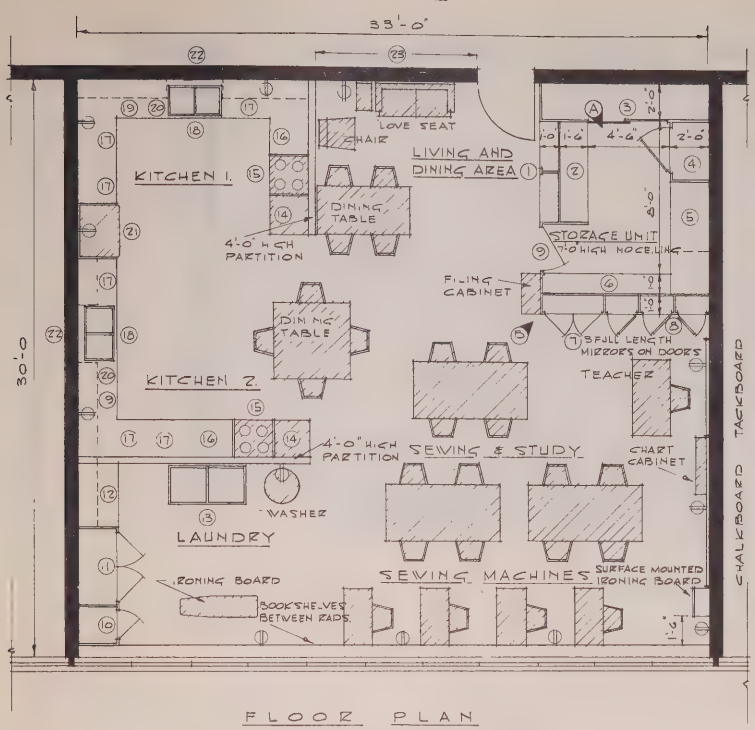




KITCHENS AND LAUNDRY



SUGGESTED LAYOUT OF
HOUSEHOLD ECONOMICS ROOM
1000 SQ. FT. (APPROX.)
ONTARIO DEPARTMENT OF EDUCATION
VOCATIONAL EDUCATION BRANCH
APPROVED BY C. J. Brattie DIRECTOR
JUNE 1951 DRAWING No 11



FLOOR PLAN

SCALE IN FEET 0 1 2 3 4 5 6 7 8 9 10

NOTES

STORAGE UNIT

1. 24 SECTIONS FOR PUPILS' NOTEBOOKS.
2. OPEN SHELVING FOR TOTE BOXES; 1'-4" BETWEEN SHELVES.
3. WARDROBE; PROVIDE 2 REMOVABLE HANGING RODS 3'-0" & 5'-6" FROM FLOOR. PAIR SLIDING DOORS.
4. TEACHER'S CUPBOARD; DOOR FITTED WITH LOCK. FULL LENGTH MIRROR OUTSIDE DOOR, COAT RAIL WITH SHELF OVER.
5. OPEN SPACE FOR FOLDING BED WITH SHELVES OVER TOP.
6. OPEN SHELVING FOR TOTE BOXES; 1'-4" BETWEEN SHELVES.
7. SUPPLY CUPBOARD, PAIR OF DOORS WITHOUT MULLION, DOORS FITTED WITH LOCK. PROVIDE 3 SHELVES WHICH ARE FULLY ADJUSTABLE.
8. SUPPLY CUPBOARDS; DOORS WITH LOCKS MIRRORS ON OUTSIDE OF 3 DOORS. PROVID 3 FULLY ADJUSTABLE SHELVES.
9. ENTRANCE DOOR; FITTED WITH LOCK.

LAUNDRY

10. BROOM CUPBOARD WITH SPACE FOR 1 PORTABLE METAL IRONING BOARD.
11. TOWEL HANGING CUPBOARD 4'-0" WIDE; WELL VENTILATED FOR DRYING, HEAT OR FORCED DRAUGHT NOT REQUIRED. FIT WITH RODS.
12. LAUNDRY CABINETS WITH WORK TOP DRAWERS AND CUPBOARDS.
13. LAUNDRY TUBS; PEDESTAL TYPE, NOT CLOSED IN BELOW. 36" TO R.M.

KITCHEN

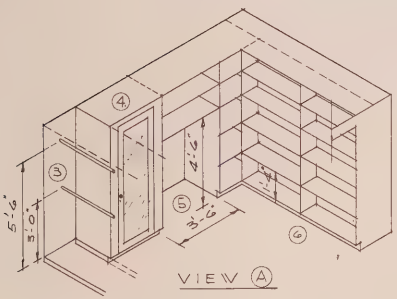
14. WORK SURFACE, MAY BE PART OF STOVE, OR AN INDEPENDENT PORTABLE CABINET.
15. STOVE; GAS OR ELECTRIC. PROVIDE ELECTRIC OR GAS CONNECTION.
16. TRAY RACK
17. CUPBOARD WITH ONE LOOSE SHELF.
18. SINK WITH VENTILATED CUPBOARD BELOW, NO SHELF.
19. PULL-OUT TOWEL RACK; VENTILATED.
20. DRAWERS - TOP DRAWER 4", SECOND DRAWER 6", BOTTOM 2 DRAWERS EQUAL.
21. REFRIGERATOR - ALLOW 3'-0" REFRIGERATOR SPACE.
22. OVER SINK - BULLETINBOARD CONCEALED LIGHT.

LIVING & DINING ROOM AREA

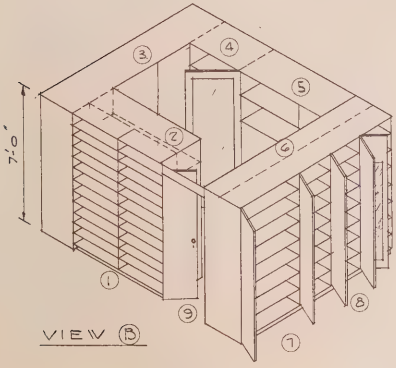
23. WALL ON LIVING ROOM SIDE TO BE KEPT CLEAR OF PIPES, P.A. SYSTEMS AND PANEL BOXES TO PERMIT PICTURE HANGING.

GENERAL NOTES

— ALL ITEMS EXCEPT THOSE SHOWN ▨ SHOULD BE INCLUDED IN THE BUILDING CONTRACT
— ELECTRIC POWER OR GAS SHOULD BE BROUGHT TO STOVE LOCATIONS BY BUILDING CONTRACTOR.
⊖ ELECTRIC CONVENIENCE OUTLET.

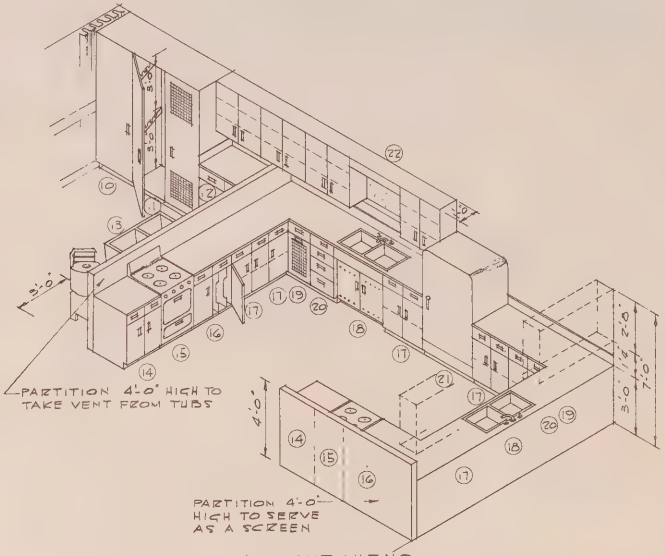


VIEW (A)



VIEW (B)

STORAGE UNIT

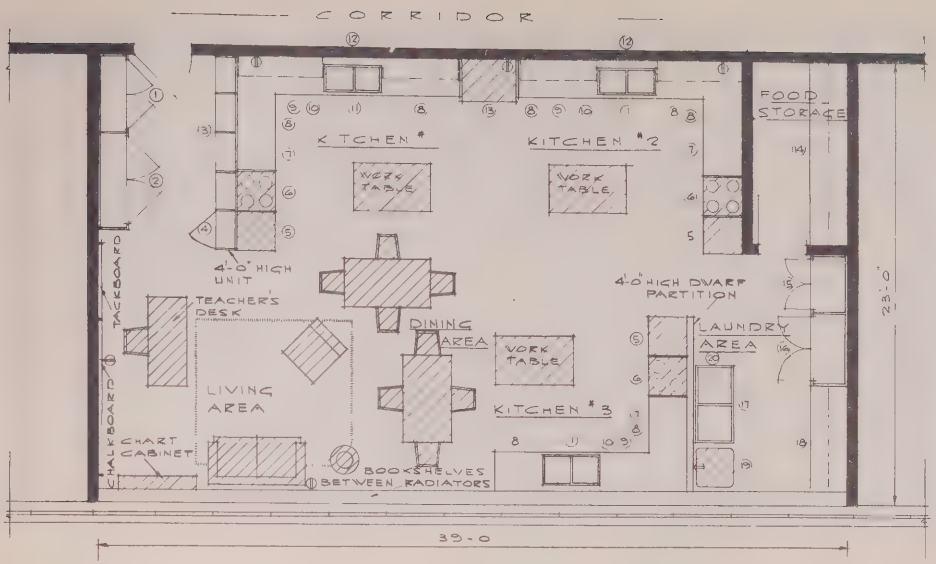


LAUNDRY AND KITCHENS

SUGGESTED LAYOUT OF

HOUSEHOLD ECONOMICS ROOM
1000 SQ. FT. (APPROX.)
ONTARIO DEPARTMENT OF EDUCATION
VOCATIONAL EDUCATION BRANCH

APPROVED BY R. S. Beattie DIRECTOR
JUNE 1951 DRAWING No 12



FLOOR PLAN

SCALE IN FEET 0 1 2 3 4 5 6 7 8 9 10

NOTES:

1. CUPBOARD, 3'-6" WIDE, 4'-6" HIGH SPACE FOR FOLDING BED WITH SHELVES OVER.
2. CUPBOARD FOR NIGHT SCHOOL STORAGE, ADJUSTABLE SHELVING.
3. 24 SECTIONS FOR PUPILS' NOTEBOOKS
4. 4 ADJUSTABLE SHELVES, FOR SMALL SUPPLIES.

KITCHEN

5. WORK SURFACE: MAY BE PART OF STOVE OR AN INDEPENDENT PORTABLE CABINET.
6. STOVE: GAS OR ELECTRIC, PROVIDE GAS OR ELECTRIC CONNECTION.
7. TRAY RACK.
8. CUPBOARD WITH ONE LOOSE SHELF.
9. PULL-OUT TOWEL RACK, VENTILATED.
10. DRAWERS - TOP DRAWER 4", SECOND DRAWER 6", BOTTOM 2 DRAWERS EQUAL.
11. SINK WITH VENTILATED CUPBOARD BELOW, NO SHELF.
12. OVER SINK - BULLETIN BOARD CONCEALED LIGHT.
13. REFRIGERATOR - ALLOW 3'-0" REFRIG. SPACE.

FOOD STORAGE

14. DOOR WITH LOCK. DECK - 24" WIDE WITH ONE SHELF UNDER. ADJUSTABLE SHELVING ABOVE 8" TO 12" WIDE OVER ALL HEIGHT 7'-0".

LAUNDRY

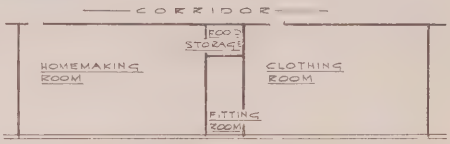
15. BROOM CUPBOARD.
16. TOWEL HANGING. CUPBOARD 4'-0" WIDE WELL VENTILATED FOR DRYING, HEAT OR FORCED DRAUGHT NOT REQUIRED, FIT WITH RODS.
17. LAUNDRY TUBS; PEDESTAL TYPE; NOT CLOSED IN BELOW, 36" TO R.M.
18. LAUNDRY CABINET WITH WORK TOP, DRAWERS & CUPBOARDS
19. WASHER - 3'-0" WASHER SPACE
20. SPACE LEFT FOR FOOD TRUCK WHEN NOT IN USE.

GENERAL NOTES:

— ALL ITEMS EXCEPT THOSE SHOWN ▨ SHOULD BE INCLUDED IN THE BUILDING CONTRACT.

— ELECTRIC POWER OR GAS SHOULD BE BROUGHT TO STOVE LOCATIONS BY BUILDING CONTRACTOR.

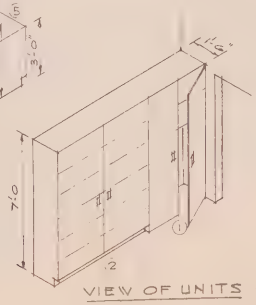
⊕ ELECTRIC CONVENIENCE OUTLET.



ARRANGEMENT WHEN HOMEMAKING ROOM AND CLOTHING ROOM ADJOIN. SEE DRAWING Nº 15 FOR DETAIL

SEE ELEVATION OF UNITS 1 2 BELOW

KITCHENS AND LAUNDRY

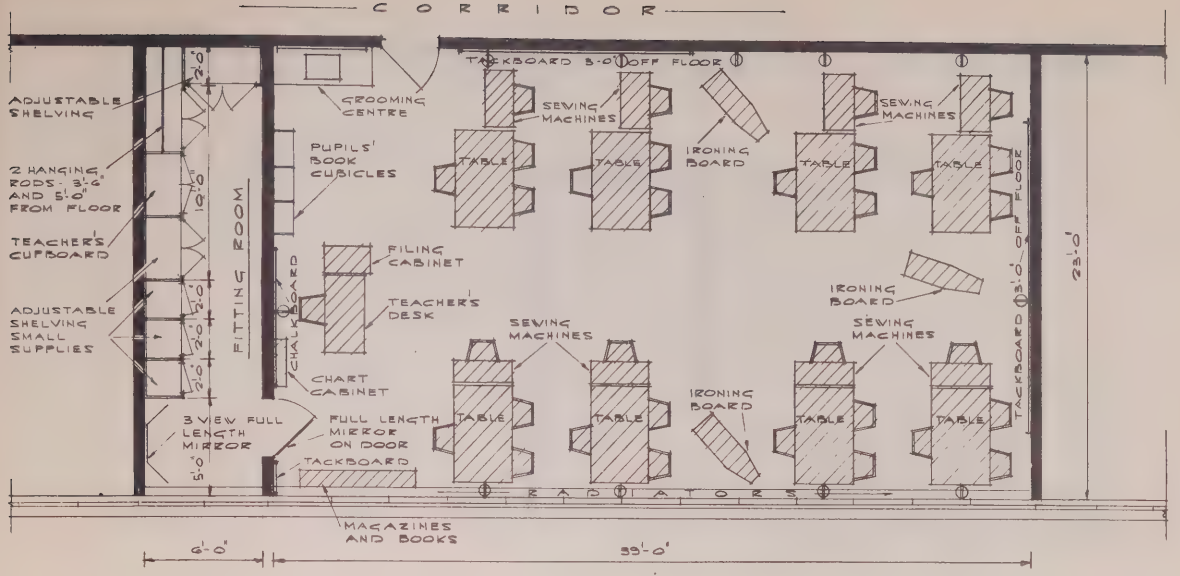


VIEW OF UNITS ①②

SUGGESTED LAYOUT OF HOMEMAKING ROOM

ONTARIO DEPARTMENT OF EDUCATION
SECONDARY EDUCATION

APPROVED BY R. B. Beattie SUPERINTENDENT
SEPT. 1952 DRAWING Nº 13



FLOOR PLAN

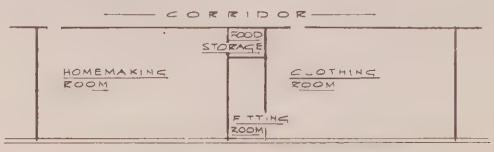
SCALE IN FEET 0 1 2 3 4 5 6 7 8 9 10

NOTE:

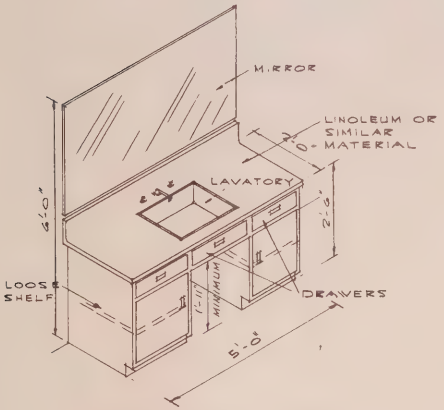
— ALL ITEMS EXCEPT THOSE SHOWN ▨ SHOULD BE INCLUDED IN THE BUILDING CONTRACT.

⊕ ELECTRIC CONVENIENC OUTLET.

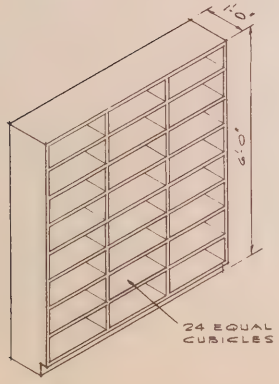
— LOCKS ON CUPBOARDS IN FITTING ROOM ARE NOT REQUIRED.



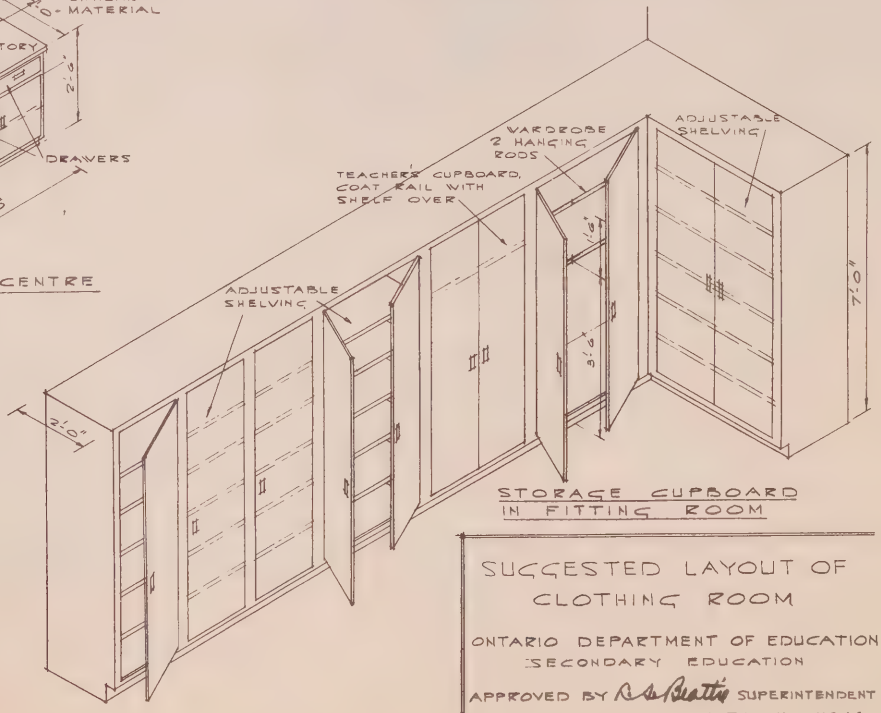
ARRANGEMENT WHEN HOMEMAKING ROOM AND CLOTHING ROOM ADJOIN. SEE DRAWING Nº 15 FOR DETAIL.



GROOMING CENTRE



PUPILS' BOOK CUBICLES

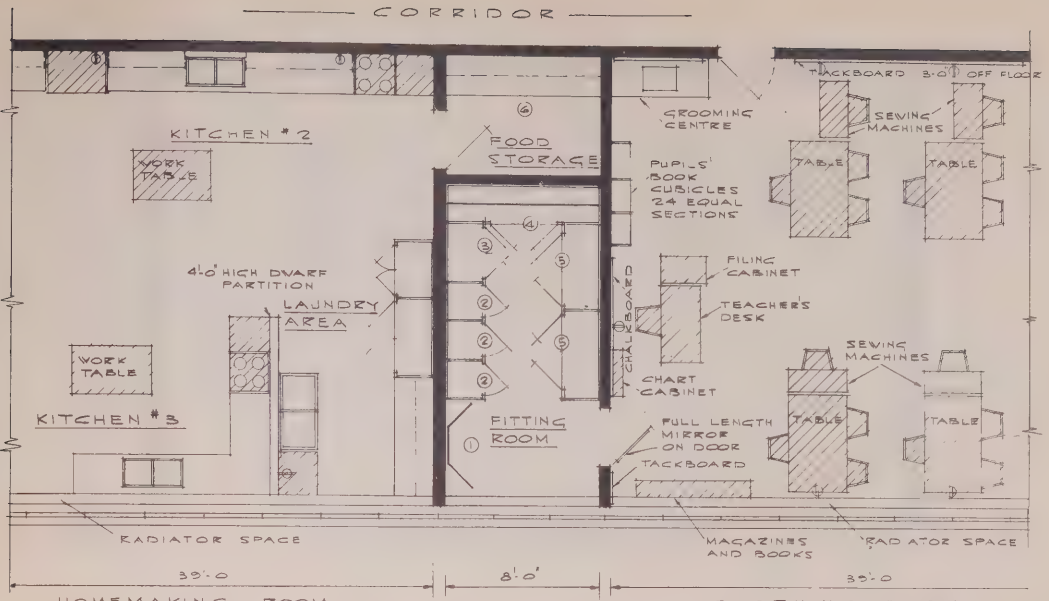


STORAGE CUPBOARD IN FITTING ROOM

SUGGESTED LAYOUT OF CLOTHING ROOM

ONTARIO DEPARTMENT OF EDUCATION
SECONDARY EDUCATION

APPROVED BY R. S. Beattie SUPERINTENDENT
SEPT. 1952 DRAWING Nº 14



FLOOR PLAN

SCALE IN FEET 0 1 2 3 4 5 6 7 8 9 10

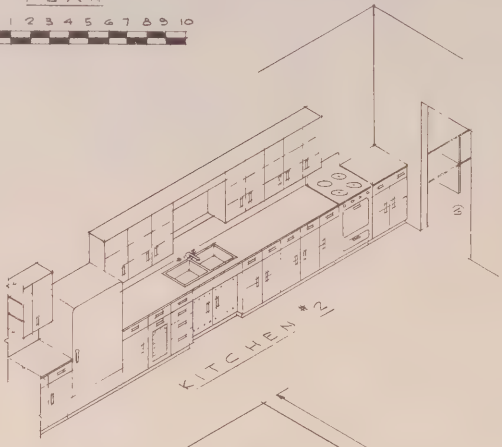
NOTES

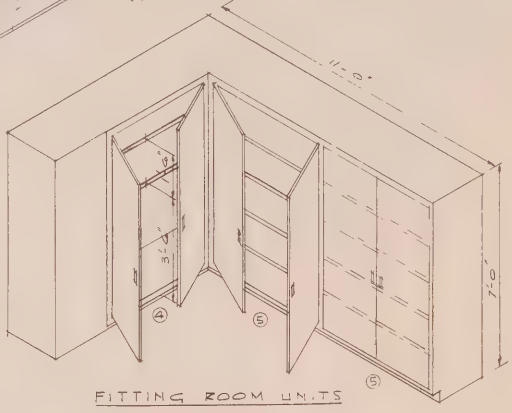
1. 3 VIEW FULL LENGTH MIRROR.
2. CUPBOARD - ADJUSTABLE SHELVING FOR SMALL SUPPLIES.
3. TEACHER'S CUPBOARD. ONE SHELF WITH HANGING ROD BELOW.
4. WARDROBE - 2 HANGING RODS, 3'-6" AND 5'-0" FROM FLOOR.
5. CUPBOARD - ADJUSTABLE SHELVING
6. DECK - 24" WIDE WITH ONE SHELF UNDER. ADJUSTABLE SHELVING ABOVE 8' TO 12' WIDE - OVER ALL HEIGHT 7'-0"

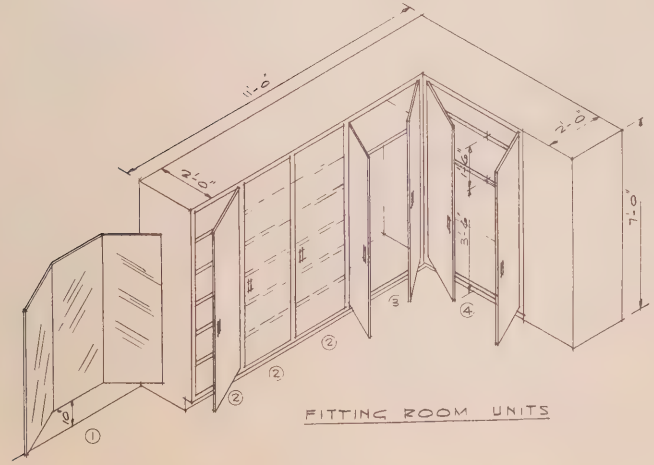
GENERAL NOTES

— ALL ITEMS EXCEPT THOSE SHOWN ▨ SHOULD BE INCLUDED IN THE BUILDING CONTRACT.

⊖ ELECTRIC CONVENIENCE OUTLET.



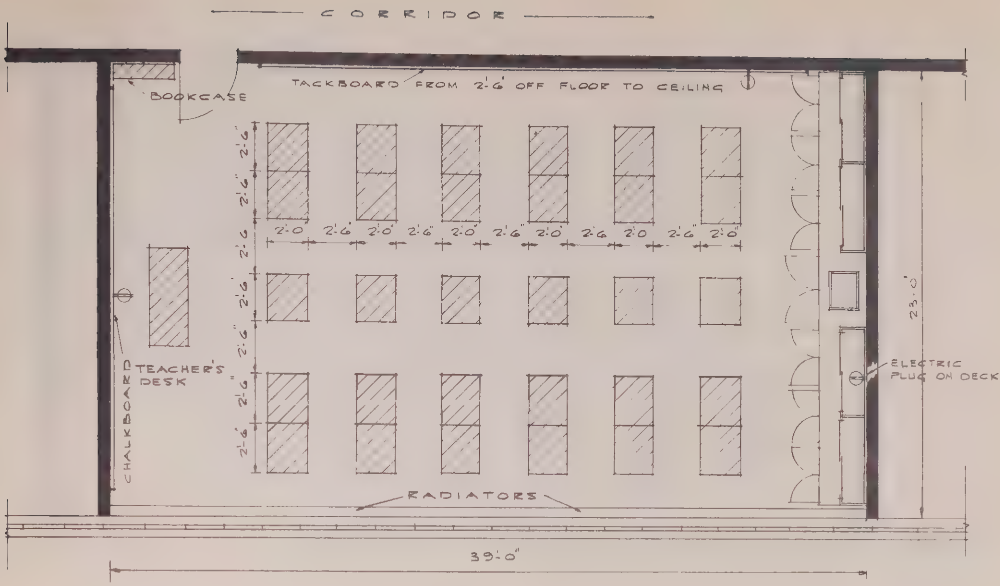




SUGGESTED LAYOUT WHEN HOMEMAKING ROOM AND CLOTHING ROOM ADJOIN

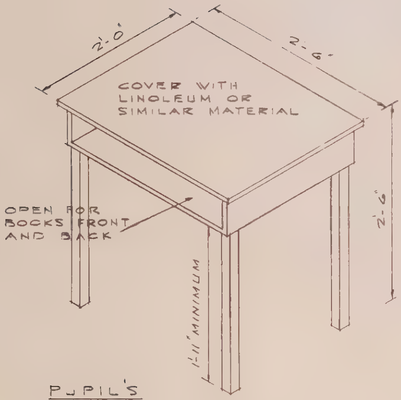
ONTARIO DEPARTMENT OF EDUCATION
SECONDARY EDUCATION

APPROVED BY R. S. Beattie SUPERINTENDENT
SEPT. 1952 DRAWING N° 15



FLOOR PLAN

SCALE IN FEET 0 1 2 3 4 5 6 7 8 9 10



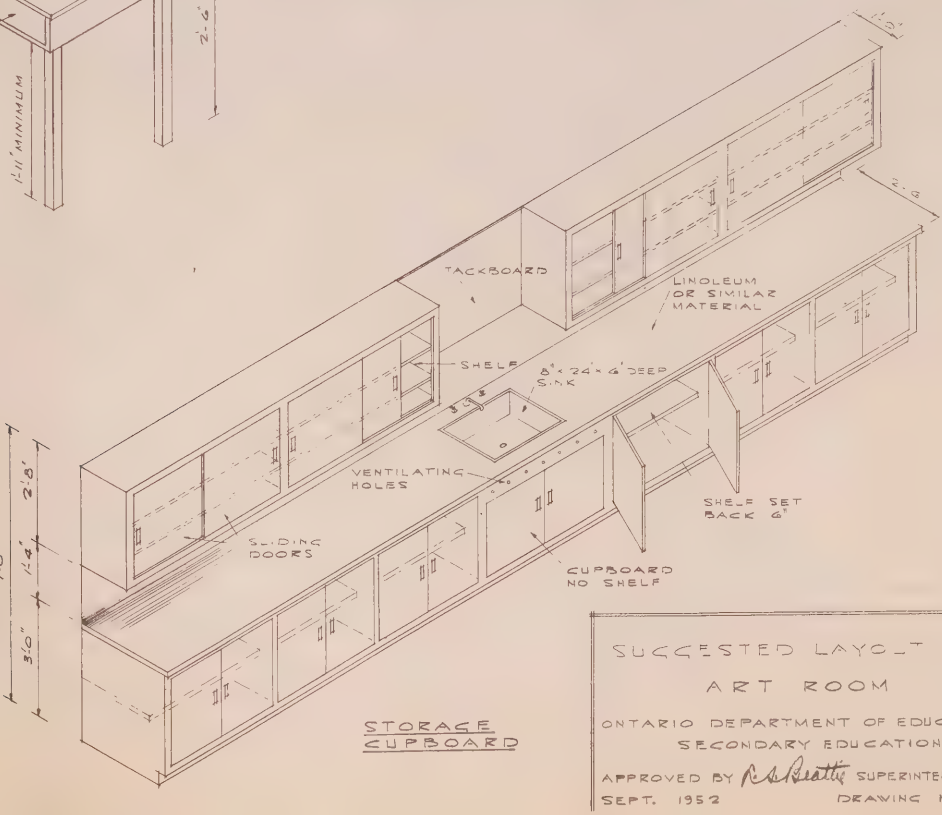
PUPIL'S DESK

ILLUSTRATION IS INTENDED TO SHOW DIMENSIONS ONLY.

NOTE

— ALL ITEMS EXCEPT THOSE SHOWN [hatched] SHOULD BE INCLUDED IN THE BUILDING CONTRACT.

— ⊖ ELECTRIC CONVENIENCE OUTLET.



STORAGE CUPBOARD

SUGGESTED LAYOUT OF

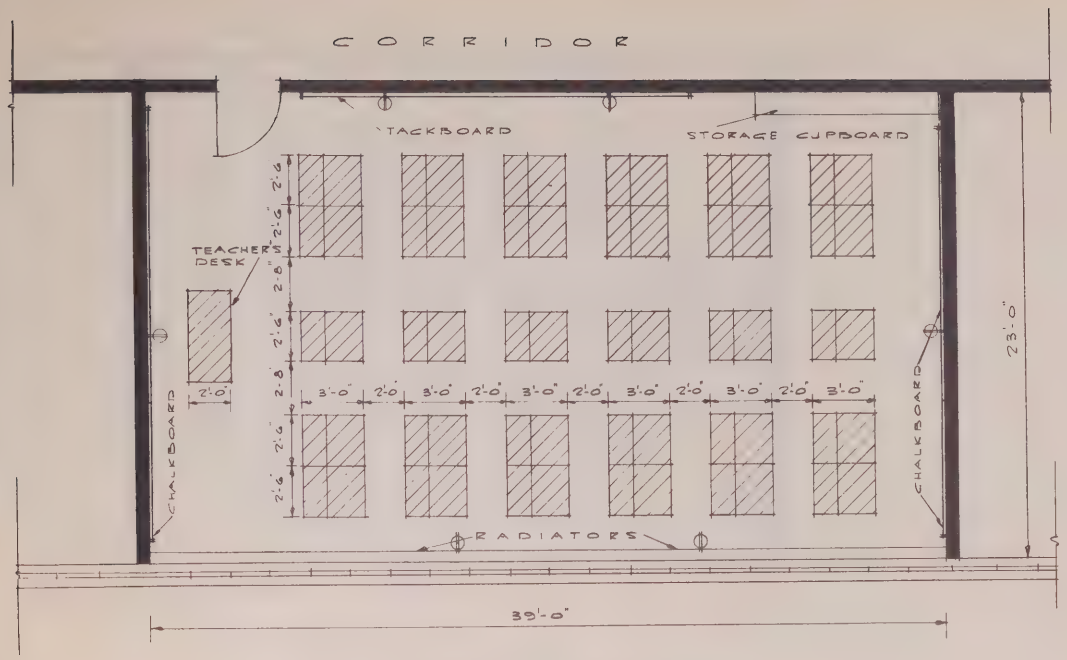
ART ROOM

ONTARIO DEPARTMENT OF EDUCATION

SECONDARY EDUCATION

APPROVED BY R. A. Beattie SUPERINTENDENT

SEPT. 1952 DRAWING Nº 16



FLOOR PLAN

SCALE IN FEET 0 1 2 3 4 5 6 7 8 9 10

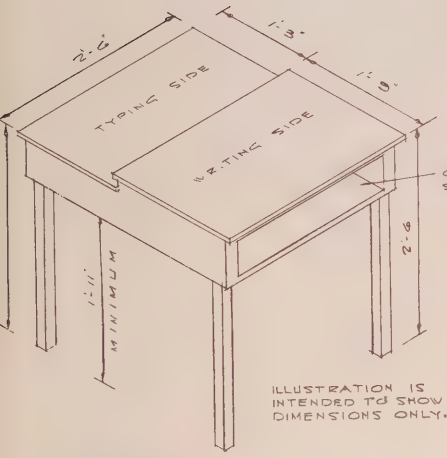


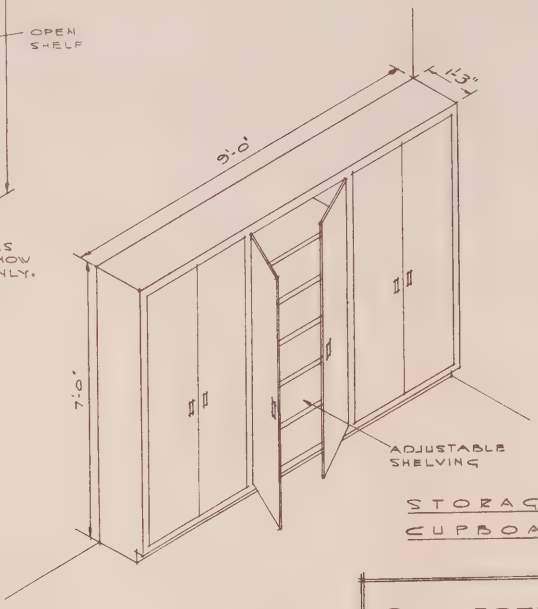
ILLUSTRATION IS INTENDED TO SHOW DIMENSIONS ONLY.

PUPIL'S DESK

NOTE

— ALL ITEMS EXCEPT THOSE SHOWN ▨ SHOULD BE INCLUDED IN THE BUILDING CONTRACT

— ⊖ ELECTRIC CONVENIENCE OUTLET



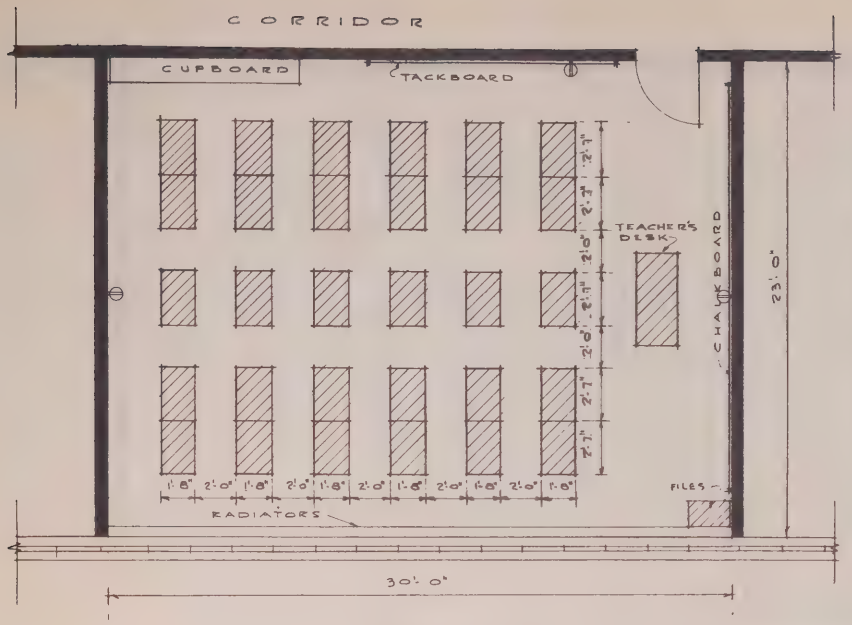
STORAGE CUPBOARD

SUGGESTED LAYOUT OF GENERAL COMMERCIAL ROOM

ONTARIO DEPARTMENT OF EDUCATION
SECONDARY EDUCATION

APPROVED BY L. S. Beatty SUPERINTENDENT

SEPT. 1952 DRAWING N° 17



FLOOR PLAN

SCALE IN FEET 0 1 2 3 4 5 6 7 8 9 10

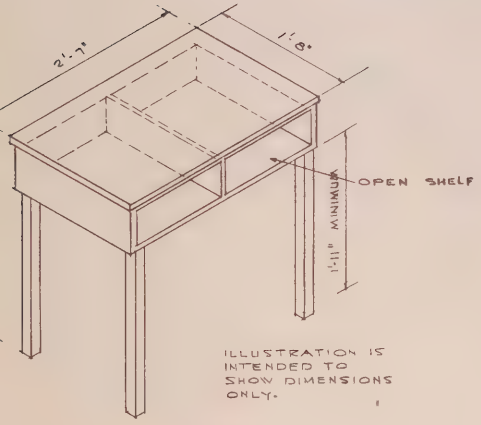
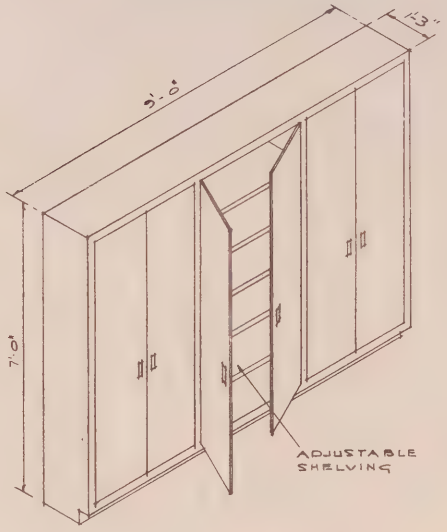


ILLUSTRATION IS INTENDED TO SHOW DIMENSIONS ONLY.

PUPIL'S DESK



STORAGE CUPBOARD

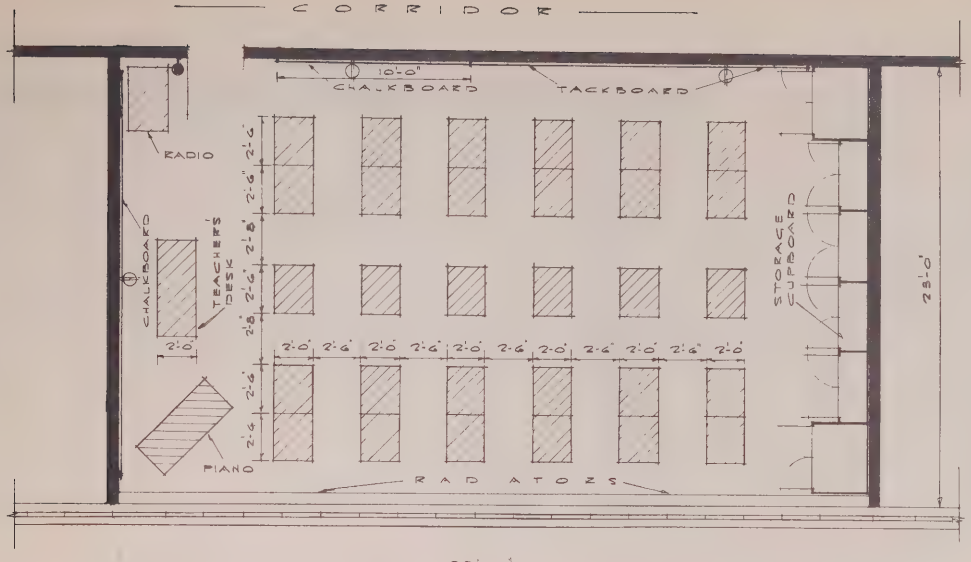
NOTE

— ALL ITEMS EXCEPT THOSE SHOWN ▨ SHOULD BE INCLUDED IN THE BUILDING CONTRACT.

— ⊖ ELECTRIC CONVENIENCE OUTLET

SUGGESTED LAYOUT OF TYPING ROOM

ONTARIO DEPARTMENT OF EDUCATION
SECONDARY EDUCATION
APPROVED BY R. B. Bratt SUPERINTENDENT
SEPT. 1952 DRAWING Nº 18



FLOOR PLAN SCALE IN FEET 0 1 2 3 4 5 6 7 8 9 10

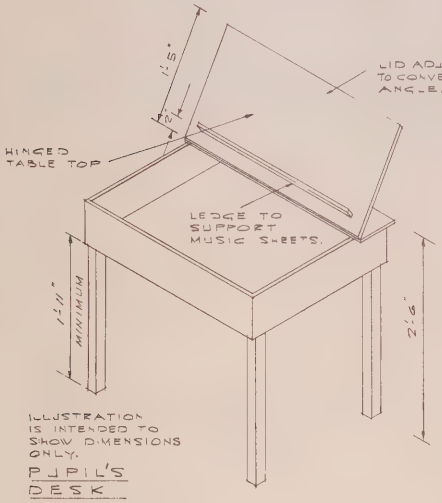


ILLUSTRATION IS INTENDED TO SHOW DIMENSIONS ONLY.

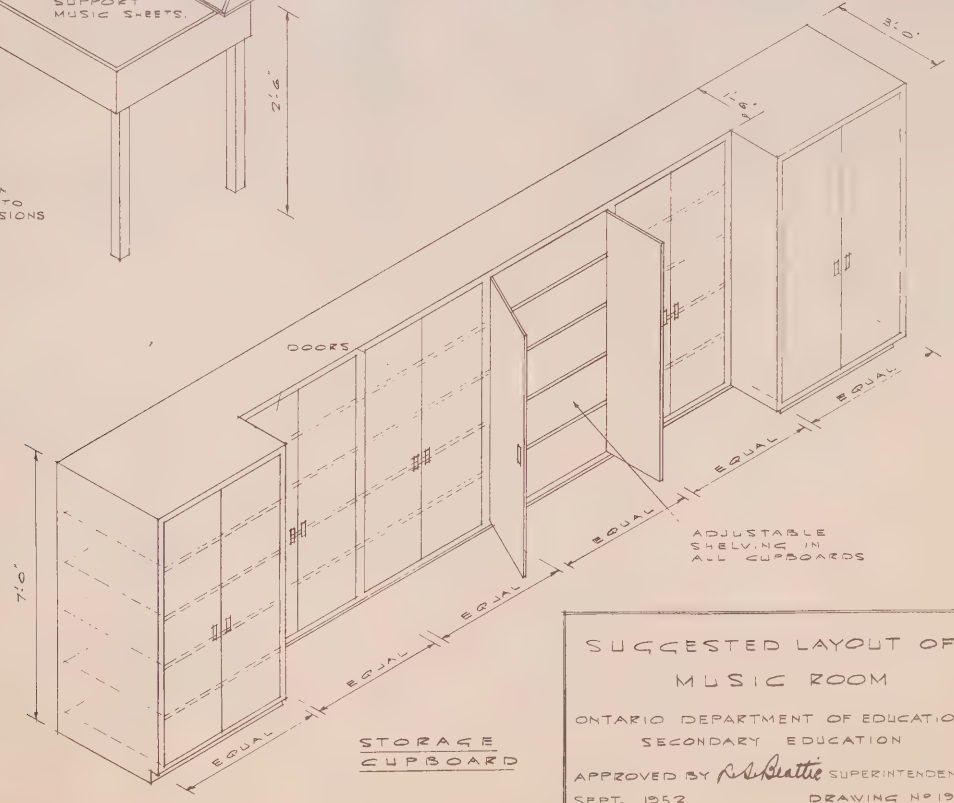
PUPIL'S DESK

NOTE

— ALL ITEMS EXCEPT THOSE SHOWN ▨ SHOULD BE INCLUDED IN THE BUILDING CONTRACT

— ⊖ ELECTRIC CONVENIENCE OUTLET

— ⊛ SPECIAL RADIO OUTLET



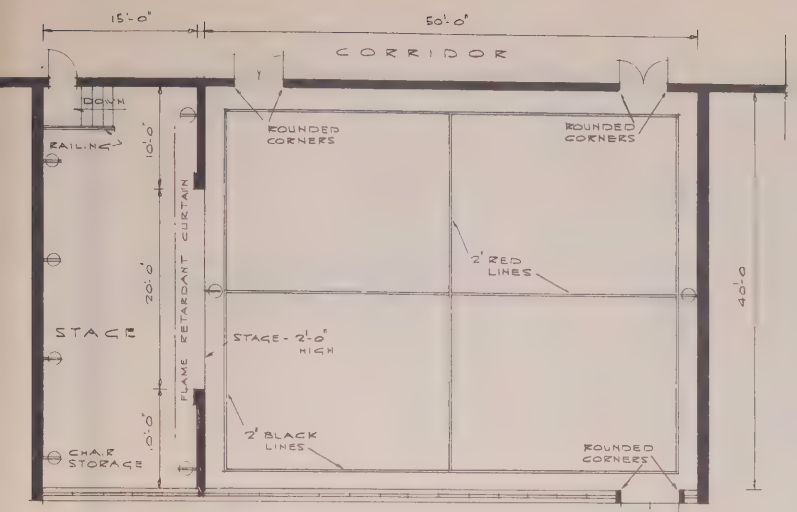
STORAGE CUPBOARD

SUGGESTED LAYOUT OF MUSIC ROOM

ONTARIO DEPARTMENT OF EDUCATION
SECONDARY EDUCATION

APPROVED BY R.B. Beattie SUPERINTENDENT

SEPT. 1952 DRAWING No 19

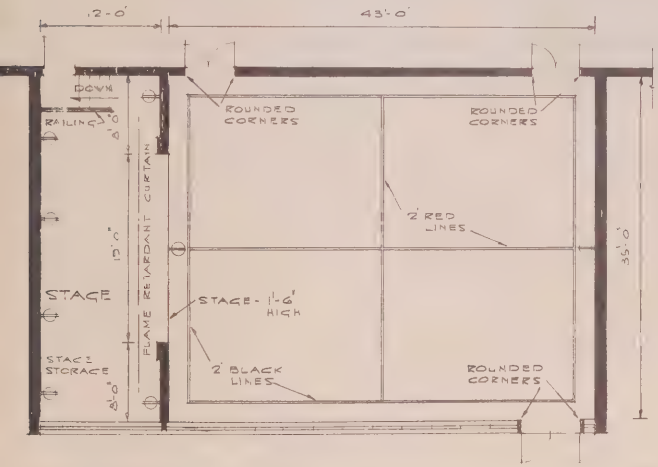


SCALE IN FEET FOR ALL PLAYROOM PLANS

0 2 4 6 8 10 12 14 16 18 20

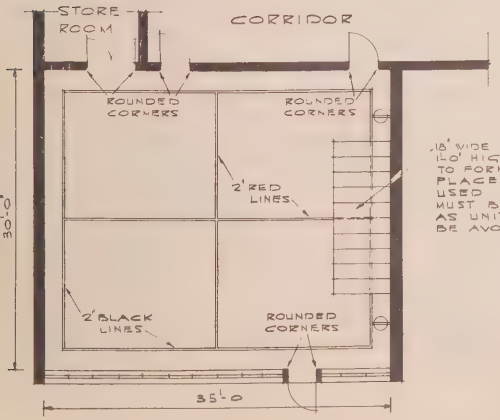
PLAN OF PLAYROOM 2000 SQ. FT. - FOR 8 ROOM OR LARGER SCHOOLS

MAXIMUM ACCOMMODATION 290 CHAIRS



PLAN OF PLAYROOM 500 SQ. FT. - FOR 6 ROOM SCHOOLS

MAXIMUM ACCOMMODATION 210 CHAIRS



18" WIDE SECTIONS 4'-0" LONG, 1'-0" HIGH FASTENED TOGETHER TO FORM A PLATFORM OR PLACED ALONG WALL AND USED AS BENCHES. SECTIONS MUST BE STABLE WHEN USED AS UNITS. OVERHANGS SHOULD BE AVOIDED.

PLAN OF PLAYROOM 1000 SQ. FT. FOR 4 ROOM SCHOOLS

MAXIMUM ACCOMMODATION 120 CHAIRS

NOTES

PLAYROOM

- CEILING HEIGHT 10'-0" TO 14'-0"
- WALLS HARD DURABLE, NON STAINING MATERIAL WITH ROUNDED CORNERS AT DOORWAYS.
- LINES ON FLOOR ARE NOT GAME LINES.
- WALL AND CEILING FINISHES SHOULD BE SUITABLE FOR PLAYROOM PURPOSES.

STAGE

STORAGE OF CHAIRS IN STAGE WING.

STAGE OPENING MAY BE FULL WIDTH OF ROOM.

GENERAL

- THERE SHOULD BE NO PROJECTING RADIATORS OR PIERS.
- IF PRACTICE BASKETBALL BACKSTOPS ARE USED THEY SHOULD BE MOUNTED ON BLANK WALLS WITH RIMS 8'-0" ABOVE FLOOR.
- MAXIMUM PLAYROOM ASSEMBLY 2000 SQ. FEET.
- PLAYROOM NOT NECESSARY FOR SCHOOLS OF 3 CLASS ROOMS OR LESS.
- WINDOW SILLS IN PLAYROOM SHOULD BE 7'-0" ABOVE FLOOR. WHERE LOWER SILLS ARE USED, THERE SHOULD BE A HARD SMOOTH SURFACE WITH NO INTERIOR PROJECTIONS FOR A HEIGHT OF 7'-0" ABOVE THE FLOOR.
- IF EXTERIOR DOORS ARE OMITTED SECONDARY MEANS OF EXIT MUST BE PROVIDED.

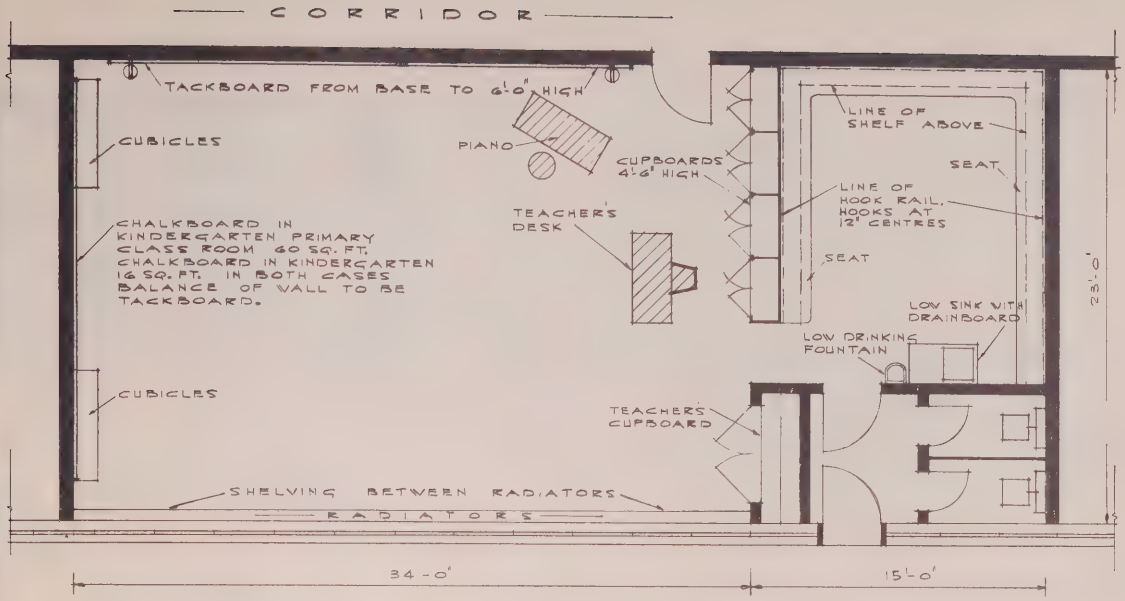
⊖ ELECTRICAL CONVENIENCE OUTLET.

SUGGESTED LAYOUT OF PLAYROOM ASSEMBLIES

ONTARIO DEPARTMENT OF EDUCATION
ELEMENTARY EDUCATION

APPROVED BY E.A. Pearson SUPERINTENDENT

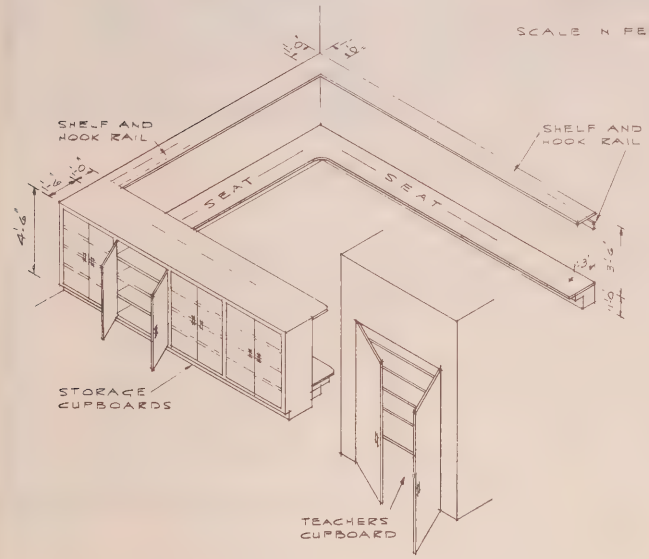
SEPT. 1952 DRAWING N° 20

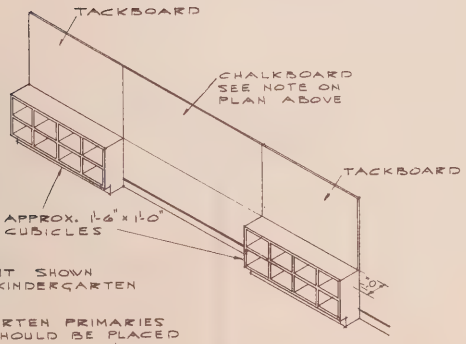


CHALKBOARD IN KINDERGARTEN PRIMARY CLASS ROOM 60 SQ. FT. CHALKBOARD IN KINDERGARTEN 16 SQ. FT. IN BOTH CASES BALANCE OF WALL TO BE TACKBOARD.

FLOOR PLAN

SCALE IN FEET 0 1 2 3 4 5 6 7 8 9 10





GENERAL NOTES

- THE PLAYGROUND OF A KINDERGARTEN AND PRIMARY ROOM SHOULD NOT BE LOCATED IN FRONT OF WINDOWS OF OTHER CLASS ROOMS.
- DECORATION SHOULD BE BRIGHT AND CHEERFUL.
- ALL ITEMS EXCEPT THOSE SHOWN ▨ SHOULD BE INCLUDED IN THE BUILDING CONTRACT.
- ⊕ ELECTRIC CONVENIENCE OUTLET.

STORAGE CUPBOARDS

- CUPBOARD FOR TEACHING EQUIPMENT. PROVIDE THREE ADJUSTABLE SHELVES. AND DOORS.

TEACHERS CUPBOARD

- TWO WIDE SHELVES AND NARROW SHELVES OVER. COAT HOOKS ON BACK OF DOORS.

OTE

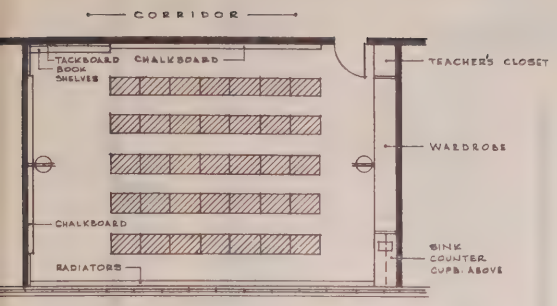
ARRANGEMENT SHOWN APPLIES TO KINDERGARTEN ONLY.

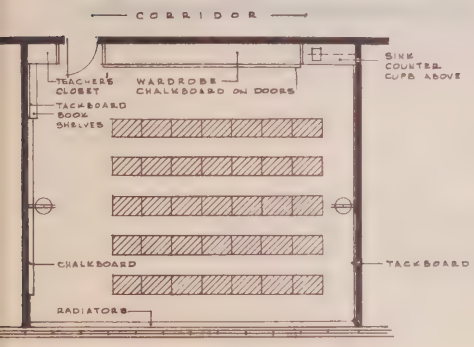
. IN KINDERGARTEN PRIMARIES CUBICLES SHOULD BE PLACED UNDER TACKBOARD ON CORRIDOR WALL.

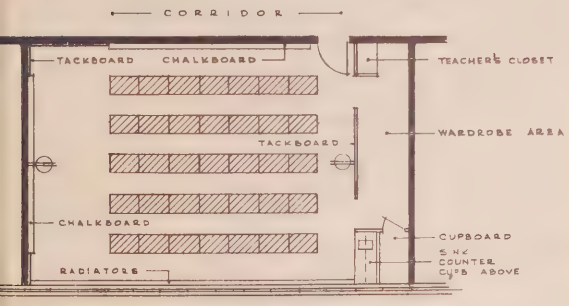
SUGGESTED LAYOUT OF KINDERGARTEN OR KINDERGARTEN PRIMARY

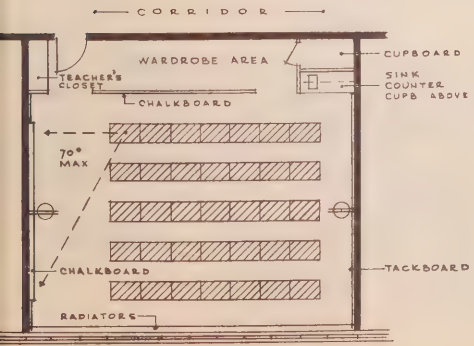
ONTARIO DEPARTMENT OF EDUCATION
ELEMENTARY EDUCATION

APPROVED BY H. C. Pearson SUPERINTENDENT
SEPT. 1952 DRAWING N° 21









THE FOUR EXAMPLES ILLUSTRATE THE POSSIBILITY OF A WIDE APPLICATION FOR THE SUGGESTIONS WHICH FOLLOW

NOTES

- THE MINIMUM LINEAL RUN OF CHALKBOARD IS 32'-0" AN ADDITIONAL 4'-0" OR MORE IS DESIRABLE
- THE MAXIMUM DIRECT DISTANCE FROM A SEATED CHILD TO THE CHALKBOARD IS 28'-0" THE MINIMUM DISTANCE IS DETERMINED BY A MINIMUM SIGHT ANGLE OF 70 DEGREES TO THE FAR END OF THE CHALKBOARD - SEE BOTTOM EXAMPLE
- DESIRABLE CHALK SILL HEIGHTS :-
  GRADES 1 TO 3 - 22"
  GRADES 4 TO 6 - 26"
  GRADES 7 AND 8 - 30"
- IF NO OTHER SINK IS AVAILABLE NEARBY A SINK WITH COLD WATER SUPPLY IN THE PROJECT COUNTER IS DESIRABLE
- UNUSED WALL SURFACE WITHIN ARM REACH BUT NOT BELOW SILL HEIGHT MAY BE COVERED WITH TACKBOARD
- BOOK SHELVES MAY BE PROVIDED BELOW TACKBOARD
- THE CLOTHING AREA SHOULD BE VENTILATED
- THE TOP EXAMPLE IS THE MOST COMMON ARRANGEMENT IT SHOULD BE NOTED THAT AMPLE SPACE IS PROVIDED IN FRONT OF WARDROBES WHILE THE SEATING ARRANGEMENT IS IDENTICAL IN EACH ROOM SHOWN OTHER ARRANGEMENTS ARE POSSIBLE

- ALL ITEMS EXCEPT THOSE SHOWN ▨ SHOULD BE INCLUDED IN THE BUILDING CONTRACT
- ⊖ ELECTRIC CONVENIENCE OUTLET
- SCALE IN FEET 0 2 4 6 8 10 12 14 16 18 20

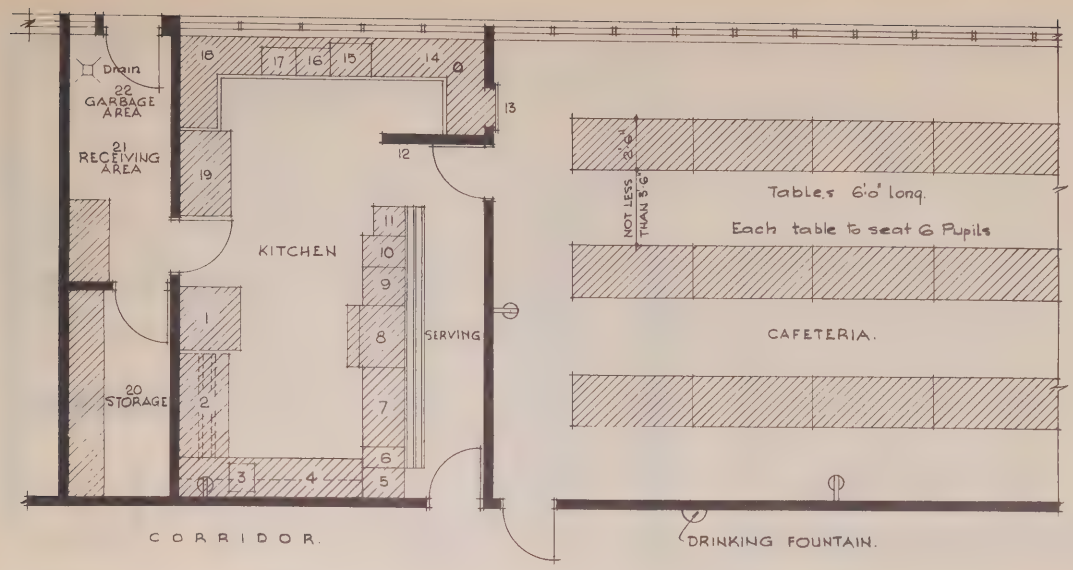
SUGGESTED LAYOUTS ELEMENTARY SCHOOL CLASSROOMS

ONTARIO DEPARTMENT OF EDUCATION
ELEMENTARY EDUCATION

APPROVED BY
JUNE 1955

G. A. Ranson
SUPERINTENDENT

DRAWING Nº 22



PREPARATION

. RANGE :- INSTITUTION TYPE 4 OR 6 BURNER, OR HOT TOP, OVEN BELOW.
2. COOK'S & BAKE TABLE :- 2'-6" WIDE 5'-6" LONG HARDWOOD TOP, DRAWERS, 30" WIDE & SHELF BELOW, POT RACK ABOVE.
3. SINK :- 12" x 18" x 12" DEEP.
4. SALAD SANDWICH TABLE :- 2'-0" WIDE, SHELF OVER 9" WIDE, MIXER 12-20 QUART COUNTER MODEL.

SERVING

5. TRAY STAND :- 1'-6" LONG, 2'-0" HIGH.
6. SILVERWARE :- 1'-0" LONG, SEPARATE CONTAINERS SHELVING BELOW.
7. SALADS, SANDWICHES, DESSERT :- 4'-0" LONG SHELVING BELOW.
8. HOT FOOD :- 3'-0" LONG, 2 PANS 10" x 20", ONE WELL 6" DIA. TWO WELLS 10" DIA. 9" HARDWOOD CUTTING BOARD, CLOSED DISH STORAGE BELOW.
9. MILK :- 2'-0" LONG, COUNTER TOP ONLY, MILK CASE STORAGE BELOW.
10. ICE CREAM :- 1'-6" LONG, 2 WELL UNIT, SELF CONTAINED COMPRESSOR.
11. CASHIER :- TABLE OR COUNTER 1'-6" x 1'-6" SHELF BELOW.

GENERAL. a. TWO 10" GLASS SHELVES 13" APART WITH 3" SNEEZE PLATE TO EXTEND OVER ITEMS 7 TO 9 INCLUSIVE.
b. BREAK GLASS AT HOT TABLE FOR EXPANSION.
c. 12" TRAY RAIL TO EXTEND OVER ITEMS 6 TO 11. INCLUSIVE.
d. UNITS SHOULD BE 4" TO 6" OFF THE FLOOR TO PERMIT EASY CLEANING

WASHING

12. SCREEN :- 5'-0" HIGH TO HIDE SOILED DISHES
13. HATCH :- FLUSH WITH DISH TABLE-LIFT SHUTTER
14. SOILED DISH TABLE :- 16 SQ. FT. LIP AROUND FRONT EDGE & SILL OF HATCH - 6" DIA. GARBAGE OPENING WITH CONTAINER BELOW. 8" SPLASH BACK
15. POT SINK :- 18" x 24" x 14" DEEP.
16 & 17. DISH WASHING :- TWO SINKS 18" x 18" x 14" DEEP ALSO USE POT SINK FOR PRE-RINSE.
18. CLEAN DISH COUNTER :- 12 SQ. FT. LIP AROUND FRONT EDGE, DISH STORAGE BELOW.

GENERAL :- a. HOT WATER TEMPERATURE 140° F.
b. A BOOSTER TO RAISE HOT WATER TEMPERATURE TO 180° IS DESIRABLE
c. A MOBILE DISH TRUCK MAY BE PLACED IN THE CAFETERIA TO SUPPLEMENT THE DISH HATCH.

STORAGE

19. REFRIGERATED :- 40 CUBIC FEET SELF CONTAINED UNIT.
20. DRY STORAGE :- 50 SQ. FT. WITH 15" SHELVES & 21" PLATFORM FOR BAGS & CARTONS
21. RECEIVING AREA :- ABOUT 30 SQ. FT. WITH A RECEIVING TABLE 2'-0" x 4'-0".
22 GARBAGE AREA :- ABOUT 25 SQ. FT. SPACE FOR THREE CANS, HOT & COLD WATER AND A FLOOR DRAIN WITH FLOOR GRADED TO DRAIN.

NOTES

FURNITURE AND EQUIPMENT INDICATED THUS

IS NOT USUALLY INCLUDED IN THE BUILDING CONTRACT.

ALL NECESSARY GAS, WATER, DRAINS, STEAM AND ELECTRIC CONNECTIONS SHOULD BE RUN TO EACH ITEM CONCERNED AND CAREFULLY LOCATED AND INSTALLED BY THE BUILDING CONTRACTOR

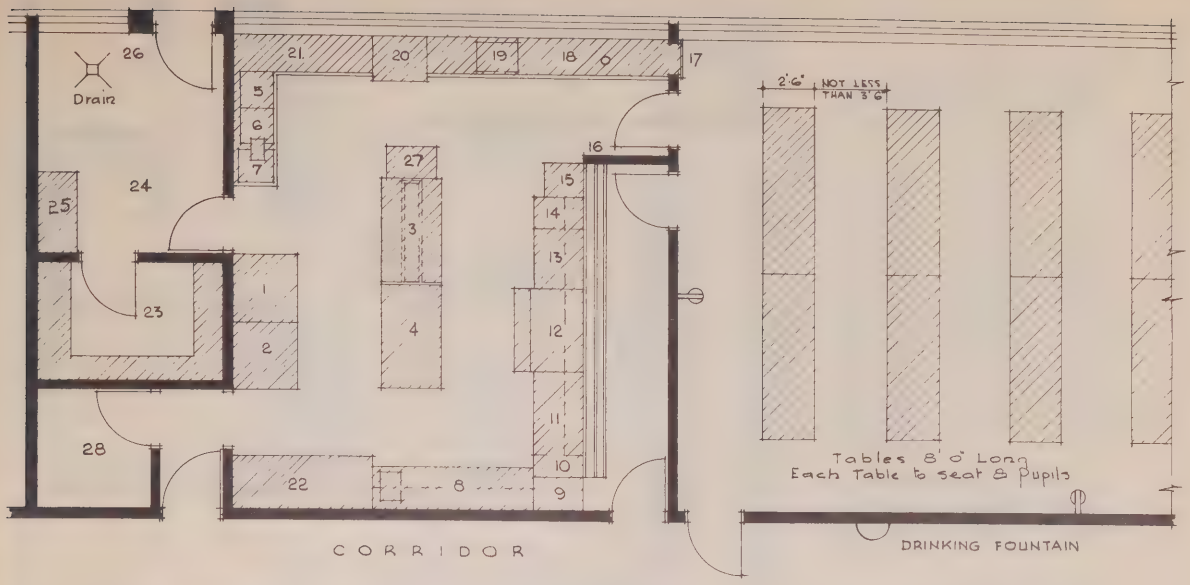
SUGGESTED LAYOUT OF CAFETERIA & KITCHEN

300 TO 500 PUPIL SCHOOL

ONTARIO DEPARTMENT OF EDUCATION

SECONDARY EDUCATION BRANCH

SEPT. 1955. DRAWING Nº 23.



PREPARATION

1 & 2. RANGES :- INSTITUTION TYPE 4 TO 6 BURNER OR HOT TOP, OVEN BELOW.
3. COOKS TABLE :- 2'-6" x 5'-0". POT RACK OVER SHELVING & TRASH CAN SPACE BELOW
4 BAKERS TABLE :- 2'-6" x 5'-0" HARDWOOD TOP DRAWERS 30" WIDE & SHELF BELOW, 20 QUART, TABLE MODEL MIXER
5 & 6. SINKS :- 18"x 24"x 14" DEEP.
7. PEELER :- PEDESTAL TYPE, 15# CAPACITY, DRAIN TO SINK, CURB AT FLOOR.
8. SALAD, SANDWICH & DESSERT COUNTER :- 2'-0" WIDE, SINK 12"x18"x12" DEEP, SHELVING & DRAWERS BELOW.

SERVING

9. TRAY STAND :- 1'-6" LONG. 2'-0" HIGH.
10. SILVERWARE :- 1'-0" LONG WITH SEPARATE CONTAINERS, SHELVING BELOW.
11. SALADS, SANDWICHES & DESSERT :- 2'-0" x 4'-0". SHELVING BELOW.
12 HOT FOOD :- 2'-6"x4'-0" WITH 9" CUTTING BOARD, 2 PANS 10"x20" ONE WELL 6" DIA. 4 WELLS, 10" DIA. CLOSED DISH STORAGE BELOW.
13. MILK :- 3'-0" LONG, REFRIGERATED.
14. ICE CREAM :- 2 WELL UNIT, SELF-CONTAINED COMPRESSOR.
15. CASHIER :- TABLE OR COUNTER 1'-6"x1'-6" SHELF BELOW.

GENERAL :- a. TWO 10" GLASS SHELVES 13" APART WITH 3" SNEEZE PLATE TO EXTEND OVER ITEMS 11 TO 14. INCLUSIVE.
b. BREAK GLASS AT HOT-TABLE FOR EXPANSION.
c. 12" TRAY RAIL TO EXTEND OVER ITEMS 10 TO 15 INCLUSIVE.
d. UNITS 4" TO 6" OFF FLOOR FOR EASY CLEANING.

WASHING

16. SCREEN :- 5'-0" HIGH TO HIDE SOILED DISHES.
17. HATCH :- FLUSH WITH DISH TABLE, LIFT-SHUTTER.
18. SOILED DISH COUNTER :- 24 SQ. FT. LIP AROUND FRONT EDGE AND SILL OF HATCH, 6" DIA. GARBAGE OPENING WITH CONTAINER BELOW 8" SPLASH BACK.
19. PRE-WASH SINK :- 24"x 24"x 12" DEEP, SPRAY NOZZLE.
20. DISHWASHER :- MANUAL SINGLE TANK, WATER TEMPERATURE 140° F.
21. CLEAN DISH COUNTER :- 14 SQ. FT. DISH STORAGE BELOW.

WASHING (Cont)

GENERAL :- a. HOT WATER IN GENERAL 140° F. THE DISHWASHER REQUIRES A BOOSTER TO RAISE TEMPERATURE TO 180° F. FOR FINAL RINSE & AIR DRYING.
b. A MOBILE DISH TRUCK MAY BE PLACED IN THE CAFETERIA TO SUPPLEMENT THE DISH HATCH.

STORAGE

22. REFRIGERATED :- 60 CU. FT. SELF CONTAINED UNIT.
23. DRY STORAGE :- 70 SQ. FT., 15" SHELVING AND 21" PLATFORMS FOR STORAGE OF BAGS AND CARTONS.
24. RECEIVING AREA :- ABOUT 50 SQ. FT.
25. RECEIVING TABLE :- 2'-0" x 4'-0".
26. GARBAGE AREA :- ABOUT 40 SQ. FT. SPACE FOR CANS, HOT & COLD WATER & A FLOOR DRAIN WITH THE FLOOR GRADED TO DRAIN.
27. TRUCK :- FOR HANDLING, RECEIVING AND SHIPPING.
28. WASHROOM :- FOR KITCHEN STAFF IF OTHER SUITABLE FACILITIES NOT AVAILABLE

NOTES

FURNITURE AND EQUIPMENT INDICATED THUS

IS NOT USUALLY INCLUDED IN THE BUILDING CONTRACT

ALL NECESSARY GAS, WATER, DRAINS, STEAM AND ELECTRIC CONNECTIONS SHOULD BE RUN TO EACH ITEM CONCERNED AND CAREFULLY LOCATED AND INSTALLED BY THE BUILDING CONTRACTOR.

ELECTRIC CONVENIENCE OUTLET FOR GENERAL USE.

1 0 1 2 3 4 5 6 7 8 9
SCALE IN FEET.

SUGGESTED LAYOUT OF CAFETERIA & KITCHEN

500 TO 800 PUPIL SCHOOL
ONTARIO DEPARTMENT OF EDUCATION
SECONDARY EDUCATION BRANCH.

SEPT. 1955. DRAWING N° 24

PREPARATION

1 & 2. RANGES :- INSTITUTION TYPE 4 TO 6 BURNER OR HOT TOP, OVEN BELOW.
3. BAKE OVEN :- 2 DECKS.
4. OVEN RACK :- 2'0" x 4'0".
5. BAKERS TABLE :- 2'6" x 6'0", HARDWOOD TOP, SHELVING & BINS ON CASTERS BELOW.
6. MIXER :- 20 QT. PEDESTAL TYPE.
7. COOKS TABLE :- 2'6" x 6'0" SHELVING & TRASH CAN SPACE BELOW, SMALL SLICER TABLE MODEL.
8. VEGETABLE PREPARATION TABLE :- 2'0" x 3'0".
9 & 10. SINKS :- VEGETABLE PREPARATION, EACH 18" x 24" x 14" DEEP.
11. PEELER :- PEDESTAL TYPE WITH CURB, DRAIN TO SINK, 25 LB. CAPACITY.
12. SALAD, SANDWICH & DESSERT COUNTER :- 2'0" x 9'0". SINK 12" x 18" x 12" DEEP SHELVING & DRAWERS BELOW SHELF 9" WIDE ABOVE.

SERVING.

13. TRAY STAND :- 2'6" LONG, 2'0" DOUBLE STACK.
14. SILVERWARE :- 1'6" LONG, SEPARATE COMPARTMENTS.
15. SALADS, SANDWICH & DESSERT :- 6'0" LONG SHELVING BELOW.
16. HOT FOOD :- 4'0" LONG, WITH 9" CUTTING BOARD, 2 PANS 10" x 20", 1 WELL 6" DIA. 4 WELLS 10" DIA. WARM DISH STORAGE WITH SLIDING DOORS BELOW.
17. MILK :- 3'0" LONG, REFRIGERATED.
18. ICE CREAM :- 3'0" LONG, 4 WELL UNIT.
19. CASHIER :- TABLE OR COUNTER, 1'6" x 1'6" WITH SHELF BELOW.

GENERAL a. TWO 10" GLASS SHELVES 13" APART WITH 3" SNEEZE PLATE TO EXTEND OVER ITEMS 16 TO 18 INCLUSIVE.
b. BREAK GLASS AT HOT TABLE FOR EXPANSION.
c. 12" TRAY RAIL TO EXTEND OVER ITEMS 14 TO 19 INCLUSIVE.
d. UNITS 4" TO 6" OFF FLOOR FOR EASY CLEANING.
e. A SEPARATE MILK & ICE CREAM LINE & CASHIER MAY BE SET UP IN CAFETERIA.

WASHING

20. SCREEN :- 5'0" HIGH TO HIDE SOILED DISHES.
21. HATCH :- FLUSH WITH DISH COUNTER LIFT SHUTTER.
22. SOILED DISH COUNTER :- 34 SQ. FT. LIP AROUND FRONT EDGE & SILL OF HATCH, 6" DIA. GARBAGE OPENING WITH CONTAINER BELOW. 8" SPLASH BACK.
23. SINK :- PREWASH, 24" x 24" x 12" DEEP SPRAY NOZZLE.
24. DISHWASHER :- MANUAL, SINGLE TANK WITH TIMER, WATER TEMPERATURE 180° F.
25. CLEAN DISH COUNTER :- 20 SQ. FT. DISH STORAGE BELOW.

WASHING (Cont).

GENERAL :- a. HOT WATER IN GENERAL 140° F. THE DISHWASHER REQUIRES A BOOSTER TO RAISE TEMPERATURE TO 180° F. FOR FINAL RINSE & AIR DRYING.
b. A MOBILE TRUCK MAY BE PLACED IN THE CAFETERIA TO SUPPLEMENT THE DISH HATCH.

STORAGE.

26. REFRIGERATOR :- KITCHEN, 40 CUBIC FEET.
27. REFRIGERATOR :- WALK-IN, 48 SQUARE FEET WITH 15" SHELVES & MEAT CUTTING BLOCK COUNTER.
28. DRY STORAGE :- 115 SQ. FT., 15" SHELVING AND 21" PLATFORM FOR CARTONS & BAGS.
29. RECEIVING AREA :- ABOUT 90 SQ. FT.
30. RECEIVING TABLE :- 2'0" x 4'0".
31. GARBAGE AREA :- ABOUT 36 SQ. FT. SPACE FOR CANS, HOT & COLD WATER AND A FLOOR DRAIN WITH FLOOR GRADED TO DRAIN.
32. TRUCK :- FOR RECEIVING & SHIPPING.
33. WASH ROOM :- FOR KITCHEN STAFF.
34. HAND SINK :- IN KITCHEN.

NOTES

FURNITURE & EQUIPMENT INDICATED THUS

IS NOT USUALLY INCLUDED IN THE BUILDING CONTRACT.

ALL NECESSARY GAS, WATER, DRAINS, STEAM AND ELECTRIC CONNECTIONS SHOULD BE RUN TO EACH ITEM CONCERNED AND CAREFULLY LOCATED AND INSTALLED BY THE BUILDING CONTRACTOR.

ELECTRIC CONVENIENCE OUTLET FOR GENERAL USE.

1 0 1 2 3 4 5 6 7 8 9 10 11

SCALE IN FEET.

SUGGESTED LAYOUT OF CAFETERIA & KITCHEN

800 TO 1200 PUPIL SCHOOL

ONTARIO DEPARTMENT OF EDUCATION

SECONDARY EDUCATION BRANCH

SEPT. 1955. DRAWING Nº 25.

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(Elem.) indicates Elementary Schools
(Sec.) indicates Secondary Schools
(Voc.) indicates Vocational Schools

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